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THAT the rubber trade is fully alive to the fact that we are in the war becomes daily more apparent. The young men, the most brilliant, the wealthiest, shoulder to shoulder with calender men, tire makers and rubber workers generally, are proving the reality of American democracy. The older men are sacrificing time, money, business, pleasure, gladly and without stint. As individuals or as committees they are meeting every call and doing effective work. Among the many was the Committee for the Second Liberty Loan, which reports subscriptions from the trade of more than \$5,000,000.

As we go to press there comes the call from a committee of rubber men to join the great Mitchel torchlight parade in New York, not for political reasons, but as a non-partisan act,—a vote of confidence on the part of those who believe the Mitchel issue to be national rather than local. These and scores of similar efforts show interest, alertness, patriotism.

THE WAR REVENUE LAW.

WHILE additional postage, documentary stamps and levies on transportation, telephone, telegraph and radio messages will considerably increase the cost of doing business, the provisions of the Revenue Law of greatest importance to commercial houses of every sort are the war excess profits and income taxes. Both of these taxes, effective from January 1, 1917, will make heavy drains; but the extraordinary expenses of the nation arising from the war must be met and American industry has already manifested its determination to support the Government in every possible way.

The war excess profits tax, which Treasury officials now estimate will yield about \$1,000,000,000, or two-fifths of the total \$2,535,000,000, is computed on a graduated scale ranging from 20 per cent of the amount of war excess profits not in excess of 15 per cent of the invested capital, to 60 per cent of war excess profits over 33 per cent of invested capital.

The meaning of invested capital is specified in the act, and war excess profits are defined as being that percentage of net income on invested capital which is found by deducting from the net income of the taxable year: First, a specific sum of \$3,000 for a corporation, or \$6,000 for a partnership or individual; second, by deducting the average percentage of net earnings or capital invested in 1911, 1912 and 1913, but this deduction must not be less than 7 per cent nor more than 9 per cent of the invested capital for the taxable year. If the net income of any establishment for the taxable year is below the average net income of representative similar industries in 1911, 1912 and 1913, the Secretary of the Treasury may allow deduction of a higher percentage.

Corporation incomes are taxed 4 per cent in addition to the present 2 per cent, or a total of 6 per cent.

The surplus of corporations remaining undistributed six months after the end of the taxable year is subject to a 10 per cent levy, unless actually invested and used in the business, or retained for reasonable business requirements, or invested in United States obligations issued after September 1, 1917. If the Secretary of the Treasury finds such surplus not so used or reasonably required, it becomes taxable at 15 per cent.

Three per cent on payments for transportation of freight will aggregate a considerable sum on the production cost account.

Parts of games, such as golf, billiard and tennis balls, checker men and the like are the only lines of rubber goods classed as luxuries and subject to excise tax. The rate is 3 per cent of the selling price to be paid by the manufacturer, producer or importer. Children's toys and games are exempt. Automobiles, trucks and motorcycles carry a tax of 3 per cent, but from the tax that would otherwise be imposed, an amount equivalent to 5 per cent of the price paid for the tires, including inner tubes, will be deducted. Chewing gum is taxed at the rate of 2 per cent.

CRUDE RUBBER STATISTICS MISLEADING.

AT THE close of the fiscal year the official figures revealed the fact that 148,826 tons of india rubber were imported into the United States during 1917. These figures, however, do not represent the actual amount of rubber available for consumption. This is based on the weight after washing and drying, and involves a loss from moisture, dirt and other foreign matter contained in the crude rubber. That this loss is considerable and largely reduces the total import figures is shown in the following analysis:

The shrinkage of plantation rubber, when washed and dried, averages about 3 per cent; as a result, 116,149 tons imported in 1917 are reduced to 112,665 tons—a loss of 3,484 tons. Paras shrink from 18 to 20 per cent, and taking the former figure as a fair average, the 25,365 tons imported are changed to 20,800 tons—a loss of 4,565 tons after washing and drying.

The other sorts, Africans, Centrals and Maniçobas, amounting to 7,132 tons, will probably shrink 25 per cent, reducing the amount imported to 5,484 tons—a loss of 1,828 tons.

Thus the total amount, 148,826 imported tons, is actually 138,949 tons of rubber available for manufacture. If this is figured as rubber, the 9,877 tons is worth \$12,543,790. If figured as water and dirt, it is worth freight and washing costs only. Nevertheless, it upsets our statistics.

THE WEIRD ENGLISH OF OUR PATENT OFFICE.

A COPTIC ecclesiastic in Upper Egypt was asked by an Arabic-speaking American the meaning of the words of a prayer which he recited in the ancient Coptic language.

"Be not offended, Mighty Sir," he replied, "that I do not give the information you ask for. Neither I, nor any of the brethren whom I know, understand the meaning of the words we speak in the offering of prayer. But we feel sure the Lord understands them and that they are very effective."

Presumably the authorities of the United States Patent Office have an equally pious hope that somewhere within this boundless universe there is an intelligence which understands the "jabberwocky" in which American patents are described quite as well as if they were garbed in the most transparent English.

Every person who has perused the pages of our es-

teemed contemporary, the "Official Gazette of the United States Patent Office" and the corresponding "Illustrated Journal of Patents," issued in Great Britain, must have noticed the difference in treatment by these two papers of the same subject. The American publication prints the first five "claims" in patent office language. The English describes in a few simple phrases and in the language of the layman, the purpose of the alleged invention and the means by which that purpose is sought to be effected.

Here is about the way the two offices would treat the same device. The English office would say: "A device to prevent skidding of rubber tires consists of a pair of circumferential side-rings with transverse bands bearing pointed metallic studs." How infantile does this appear when compared with the stately deliverance of our own revered Patent Office: "The combination of a wheel with a rim, a tire member of said rim, means for attaching said tire member to said rim, said tire consisting of an inner inflatable member, an outer protective member, side members with a plurality of transverse members containing a multiplicity of pointed elements, substantially of and for the purpose described."

This pleasing description is given five times with a change of a word or two; while we are made thankful for such mercies as we are permitted to receive by the announcement that "claims 6 to 17 are not printed in the Gazette."

Americans joke much about the English fogs. Perhaps the clarity of our own atmosphere is due to the fact that the American Patent Office has a corner on fog in this country, while in Great Britain the air is foggy and the patent reports are clear. If such is the case, our pride in the American Patent Office is not without reason.

The matter has, however, another and a more serious side. Taking advantage of this stilted and circuitous verbiage, a clever attorney can come pretty close to patenting anything.

FEW EXEMPTIONS ASKED BY RUBBER COMPANIES.

ALTHOUGH the large government orders being executed by the leading American rubber companies might seem to entitle them to special consideration with regard to the workings of the selective draft law, the number of exemptions they have requested thus far has been surprisingly small. For example, The B. F. Goodrich Co., Akron, Ohio, has asked and obtained exemptions for only seventeen of its employees, each of whom was absolutely essential to the completion of government contracts. In relinquishing a great majority of the men responding to the first draft call, rubber companies generally feel that they are performing a patriotic duty, despite the fact that these losses have indisputably impaired their working forces to a certain degree.

What I Saw in the Philippines—V.

By the Editor of The India Rubber World.

Meeting with the Pioneer Planter—His Experiences with Ceara—His First Hevea a Failure—Later Plantings—Record of Planting Progress—A Slam at the Bureau of Agriculture—The Rio Grande Reorganization—Absence of Hevea Diseases—Some Comments on Hevea Experiments by the Writer—The History of the Rio Grande Estates—Description of the Fertile Cotabato Valley.

BY arranging visits to growing plantations, and by indicating which of the various residents of the Islands were authorities on planting, Governor Carpenter quietly and effectively assisted me in my attempt to get at the real truth of the *Hevea* situation.

For example, it was his hint that led me to look up in Zamboanga one who perhaps knows more on that subject than any other. Every phase of the situation was known to him, not theoretically, but practically. So I got him to talk, and as this is a matter that is of prime importance to the American rubber trade, I am going to devote a part of this chapter to what he said.

"I first started experimenting with rubber in 1903," said he, "planting at that time, Ceara. This grew like a weed and gave excellent promise, which was not fulfilled. It was soon learned that our climate was entirely too wet for Ceara, there

"Another lot of the same plants was planted out by a neighbor and has made remarkable growth. These trees, a few hundred in number, are now over ten years old and have never been tapped. Individual trees measured show the remarkable growth of 66 inches girth three feet from the ground.

"From 1906 onwards, planting went on steadily, there now being two flourishing estates with 100,000 trees planted.

"Rubber planting from the start was an uphill business. We had to learn it all from 'hard knocks,' having nothing to go by here in the islands. Only the Bureau of Forestry was interested in the matter, the Bureau of Agriculture telling all seekers for information that it was far too much of a gamble and to plant coconuts.

"Up to the present nothing has been done by the Bureau of Agriculture to advance this most important industry, except in a 'left handed' way. Their only 'rubber expert,' when writing a bulletin on coconuts, side-stepped the issue for a moment to advise rubber planters to cut off the 'useless tap-root' before planting out the young plant, as it was a more or less useless article. "All the governors of what was the Moro Province and is



THE GOVERNOR OF MINDANAO

being more than 100 inches of rainfall per annum, and that the trees were too susceptible to root diseases to make planting a success. The yield was quite satisfactory, but bark renewal was poor, nor did the tree show wound response as with Para. In 1905 seeds of *Hevea Brasiliensis* were secured from Ceylon, but were not fertile. In 1906 another shipment, also from Ceylon, proved to be in better shape, some 60 per cent germinating. About this time, the Bureau of Forestry secured several thousand Para seeds, and planted them in

small boxes, some three or four hundred to the box. These boxes were then sent to Zamboanga and distributed to planters throughout the Southern Islands. Of this lot, a few hundred falling to me were planted out, together with seedlings from my own nursery. This planting was made from September to November, 1906.



THREE YEAR OLD HEVEA, 18 INCHES IN GIRTH, BASILAN ISLAND.



RUBBER AND COCONUTS WITH PATANI BEAN COVER

now the Department of Mindanao and Sulu have been enthusiastic

* My impression is that this is an error on the part of the narrator. An expert did advise the cutting of the tap root in certain transplanting that was being done on the "Chicago" plantation, and in that case it seemed to do no harm. See THE INDIA RUBBER WORLD, September 1, 1917, page 698.—The Editor.

as to the rubber planting possibilities throughout this section.

"In 1911 a start was made in the Province of Cotabato to plant Para rubber by the Rio Grande Rubber Estates Co., but through mismanagement little was done and the company went into liquidation. Mr. Kennedy, of Glasgow, Scotland, one of the original shareholders, reorganized the company. Mr. Kennedy came out to have a 'look see,' at the same time visiting the Federated Malay States where he also has holdings. After seeing what had been done on Basilan and the growth of rubber on the Rio Grande Estate, he at once decided to go ahead with planting on a large scale. He now has several thousand trees just about ready for tapping and is planting right along as fast as he can.

"Now as to what Mindanao has to offer: It is in the center of the 'Rubber Belt,' about six degrees North latitude. Rainfall throughout this section ranges from 90 to 150 inches, and is well distributed throughout the year.

"Mindanao is outside the typhoon belt, heavy windstorms being unknown. The climate is very fine and healthy for white men, being far better than more tropical climates.

"Any quantity of land, that cannot be surpassed in any rubber growing district, can be had on terms that are very moderate, \$2 per acre with five years in which to pay. A single corporation is limited to 2,500 acres, but that is quite a piece of land when planted to rubber—over 300,000 trees, which would produce over a million pounds of rubber in less than ten years from the time of planting.

"Taxes are moderate and we have a stable government, where life and property are as safe as in New York.

"Communication to all parts of the department is excellent, steamers to all ports, wireless telegraph stations in all the principal towns, with telephone lines linking up outlying towns.

"There is an abundance of labor to be had, the wage ranging from 20 to 50 cents gold per day.

"There are no expensive labor recruiting costs, as in other rubber countries. The government maintains a Labor Bureau, and workmen are transported by the government at a very

small cost to locations where they are required. This labor, properly managed, is considerably more efficient than that, other than Chinese, used in the Malay States.

"Careful records of the growth of rubber under varying conditions as to soil and cultural methods for more than ten years past, have demonstrated that

Para rubber here in Mindanao makes a more sturdy growth and reaches tapping size in a shorter time than anywhere else. In an average field hundreds of trees only three years old show a girth of 18 inches three feet from the ground.

"Mindanao is free from about all the diseases that other rubber countries have to fight. There is an occasional case of *Fomes Lignosus* in rubber planted in heavy jungle land, which is to be expected. But there is no 'Die Back,' 'Bark Rot,' 'Canker,' 'Pink Disease,' etc. It is also true that first class

fertile seed can be had here at home, and thus there is no danger of importing diseases.

"Careful records on trees being tapped for the first time, covering one year from the time the trees were four years old, one cut daily one-third section to left, resulted in an average yield of 750 grams, or over one and one-half pounds of dry rubber per

tree. This result was secured from several thousand trees covering one year, and not from a few trees for a short time. Bark renewal has been all that could be expected.

"The quality of the rubber has often been reported on by manufacturers as being A-1, all shipments finding a ready sale at top prices.



CEARA AND PEANUTS, MORNUNGAN, MINDANAO.



YOUNG RUBBER ON RIO GRANDE RUBBER ESTATES, MINDANAO, PATANI BEAN FOR COVER.

"Native tappers under good supervision have tapped as many as 600 trees to a section, doing the work well, collecting their rubber and washing their cups.



RENEGADE MOROS OF MINDANAO.

"The rainfall is so distributed that not more than one or two days' tapping is lost per year from rain during tapping hours, that is, early in the morning.

"There are so many locations throughout the Department of Mindanao and Sulu where rubber would make splendid growth that it would take too much time to go into details; but the Forestry Department, or the Chief of the Public Lands Office in Zamboanga, can furnish exact data for all who wish such information."

In commenting upon the foregoing, what my friend said about the Bureau of Agriculture is unfortunate -

ately what other planters seemed to feel. Indeed there is a wide-spread belief that the bureau is not at all in favor of rubber growing in the islands, and that certain officials had been advised against it. A statement by the bureau, published in the "Philippine Agricultural Review," December, 1910 (page 688), would, however, seem to dispose of this belief:

"This Bureau has a lot of fine Para rubber trees growing in Manila, already at the bearing age and tapped. The distribution of Para seed in the ordinary way is out of the question, as they must be imported and have very poor keeping qualities. The seed imported have been germinated and the young trees distributed. These will in time become central seed supplies wherever growing.

"It is hoped that the enthusiasm now being shown in rubber will continue and that private enterprise will soon establish a large number of plantations in these islands, where conditions unquestionably exist that will result in successful rubber production."

It would seem, however, that they had lacked in discrimination, as they have nearly always laid emphasis upon the fine growth attained by *Castilloa* and *Ceara* and spoken of *Hevea* as a sort of "also ran."

The fact is, the growth of *Hevea* is just as satisfactory as either of the two sorts named. But there is the important difference that the *Hevea* is a big, profitable, rubber producer and the others are not. Wonderful growths of both *Castilloa* and *Ceara* were attained in Ceylon and the Federated Malay States, but the trees were nearly all cut down and replaced by *Hevea*. This fact being so well established, it be-



6 YEAR OLD CEARA RUBBER, BADER PLANTATION.



FOUR YEAR OLD PARA RUBBER, BASILAN ISLAND.

hooved the intelligent agriculturist to talk *Hevea*, for which there is a wonderful future, and ignore other rubber producers which, at best, are likely to play but a minor role.

Not only that, but from a cursory examination of what the Agricultural Department in the Philippines has done to further rubber culture, it is evident that other products had not only seemed of greater moment, but that much that was done for rubber bore little evidence of either knowledge or real interest. For example, as late as 1908 there were planted in the Lamao Forest Reserve, on the shores of Manila Bay, in brush land, some 400 *Heveas*, "with a view of determining whether or not they are capable of making a satisfactory growth without clear-



TYPICAL MORO HOUSE, JOLO ISLAND.

ing the land." The result proved that the trees did very poorly, which was to be expected. Such an experiment was in no way justified. Had it not been necessary, is it supposable that the successful plantations in Ceylon, the Federated Malay States and Sumatra would have gone to the expense of clearing? With all of the knowledge of *Hevea* planting available, such experiments are not only a waste of time and money, but with their absolute certainty of failure, a definite damage. They mean nothing to the well-informed, but to others they apparently prove that *Hevea* cannot be grown in the Philippines.

Speaking of the Rio Grande Rubber Estates, I was fortunate in seeing in Zamboanga a report that has never been published, telling the whole story of its maladministration. This report, by the way, was written by a rubber planting expert from Borneo, to whom the government of Mindanao entrusted the task of looking into the affairs of the Rio Grande company.

From this and from my own notes is learned that Cabacan Estate, to which the pioneer referred, is situated in the Province of Cotabato, at the junction of the Rio Grande de Mindanao and the Cabacan river,

and comprises a total area of 2,471 acres under a permit of occupation.

The estate was opened in December, 1912, under the auspices of the Rio Grande Rubber Co. During the period from December, 1912, to the end of 1915, a certain amount of work was done, both coconuts and Para rubber being planted. But several changes of managership took place and, results being unsatisfactory, it was practically abandoned in the beginning of 1915.

The land consists of an alluvial flat along the banks of the two rivers, being situated about 8 feet above the highest water-mark of the river level.

The soil is solely an alluvial deposit of great depth which has originally been carried by the two rivers from the mountain regions. The surface soil consists of a loamy humus from 1½ to 2 feet in depth and rests in a subsoil of a rich clayey loam, a good deep brown color and evidently of a very great depth. It is of quite even and uniform texture to a depth of about 8 feet, as one can easily see at the river bank that the depth of this same layer extends probably to 30 feet, and that below probably the same kind of soil is found, only possibly richer in clay and of a somewhat stiffer nature. Speaking of the favorable location of the plantation, the report continues:

"The Rio Grande has at the plantation a breadth of about 600

feet, while the river Cabacan is about 150 feet wide. The Rio Grande is navigable at all seasons of the year by steamers and launches, and transport offers therefore no difficulties. Much of this land is covered with tall grasses, which often grow 15 feet and more in height. The rainfall, this distance up the river and con-

siderably nearer to the hills, is greater than at Cotabato. Indeed everything, soil, temperature and winds, makes it ideal."

(To be continued.)



HEVEA SHOWING TAPPING SURFACE



SHIPPING RUBBER, BASILAN.

War News of the Rubber Industry.

The Second Liberty Loan—Horace De Lissier on Pershing's Staff—Service Personals—American Steamships Requisitioned—Aviation Program Progressing Rapidly—Rubber Tubing for Airplane Gasoline Lines—Army Tractors With Rubber Tires—The Tire Situation in the Central Empires—American Helmets to Have Rubber Shock Absorbers—Rubber Goods for the Dogs of War—Articles Requiring No Export Licenses—The Conservation List—British Cotton Consumption Under Control.

THE SECOND LIBERTY LOAN.

IN the same spirit of enthusiasm manifested during the first Liberty Loan campaign, the rubber industry is cheerfully doing its full share to make the second a success. At the time of writing the drive remains unfinished and available figures are meagre, but the known subscriptions of rubber companies and their employes are, generally speaking, more generous than in the first loan.

With ever-ready patriotism, the United States Rubber Co. promptly subscribed \$1,000,000, and early in October announced a novel plan enabling many individuals to do their bit. Partly through a desire to help owners of its securities to subscribe to the second Liberty Loan and partly to retire some of its outstanding obligations, the company expressed its willingness to redeem \$12,373,000 of bonds a year in advance of their maturity. The following offer was made: 102.35 and accrued interest to the holders of its \$9,421,000 of ten-year collateral trust sinking fund 6-per cent bonds, due December 1, 1918, and 101.25 and accrued interest for the \$2,172,000 of Morgan & Wright 5-per cent debentures and the \$780,000 of Canadian Consolidated Rubber Co. 5-per cent debentures, this offer to expire on October 27, the last day of the Liberty Loan. Funds for the retirement of these securities were drawn from the \$60,000,000 of refunding 5-per cent bonds sold by the company several months ago.

Another large corporate subscriber is the Continental Rubber Co., which has taken \$300,000 worth of bonds.

Employes everywhere are responding nobly. For example, the operatives of the United States Rubber Reclaiming Co., New York City, had subscribed \$150,000 at the time of writing, with a good prospect that the total would reach \$250,000.

In New England, rubber men respond the more eagerly to the magnificent leadership of Governor Alfred L. Aiken, of the Federal Reserve Bank of Boston, in the knowledge that he may figuratively be said to be one of them. It will be recalled that he is the grandson of the late Governor William A. Buckingham, of Connecticut, one of the founders of the Hayward Rubber Co., and a son of General William A. Aiken, one of the directors and a large stockholder in the same company.

The Hood Rubber Co., Watertown, Massachusetts, has taken the initiative again, as during the former loan, and is

encouraging other New England firms to adopt its financing and weekly payment plan among their employes, and to maintain a permanent organization for the promotion of all future loans. Fifty of the larger companies are cooperating. At the time of writing, Hood employes have subscribed \$150,000, as compared with \$70,000 for a similar period before.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, is also making an excellent showing. "The Fisk Bulletin" of October 15 is devoted almost exclusively to promotion of the loan, and on the first day of canvassing bonds to the amount of \$245,000 were sold to employes. It is believed that subscriptions may total three times those of the first campaign.



GOVERNOR ALFRED L. AIKEN



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MAJOR HORACE DE LISSIER

were appointed by Benjamin Strong, chairman of the Liberty Loan Committee of the Second Federal Reserve District, to represent the rubber trade:

CHAIRMAN.

J. H. Cobb, president, The New York Belting & Packing Co., New York.

VICE-CHAIRMAN.

W. J. Kelly, Arnold & Zeiss, New York.

SECRETARY.

A. W. Archer, Electric Hose & Rubber Co., New York.

OTHER MEMBERS.

H. S. Firestone, president, Rubber Association of America, Inc., New York.

H. M. Green, vice-president, Manhattan Rubber Manufacturing Co., New York.

Clarence H. Low, secretary, U. S. Rubber Reclaiming Co., Inc., New York.

B. G. Work, president, The B. F. Goodrich Co., New York.

Homer E. Sawyer, vice-president, United States Rubber Co., New York.

Charles T. Wilson, president, Charles T. Wilson & Co., New York.

John Acken, president, New York Rubber Co., New York.

Henry C. Pearson, editor THE INDIA RUBBER WORLD, New York.

Considering the short time allowed the committee—from October 19 to 27—a remarkable record was made in securing the required information. On the morning of October 26, the rubber trade subscriptions to the Second Liberty Loan in the Second Federal District amounted to \$5,100,000, and the list was still growing.

THE SECOND LIBERTY LOAN RUBBER TRADE COMMITTEE.

On October 19, the following members of The Rubber Association of America, Inc., were

HORACE DE LISSER ON PERSHING'S STAFF.

The appointment of Horace de Lisser, chairman of the board of directors of the Ajax Rubber Co., Inc., New York City, to the "Business Men's Staff" of General Pershing with the rank of major, to direct the construction of 15 miles of factories behind the firing lines, furnishes another indication of the wise policy of the American Government in delegating big and vital tasks to



ELISHA E. CONVERSE PARKER CONVERSE
ENSIGN U. S. TRANSPORT ON MINE SWEEPER "ANDERTON"
SONS OF HARRY E. CONVERSE, PRESIDENT OF BOSTON RUBBER
SHOE CO.

men of wide experience and well-known ability. The factories to be built will supply such field equipment as can be manufactured abroad more expeditiously than it can be imported. Mr. de Lisser undertakes the task at a sacrifice to himself and his firm, and while appreciating the honor of his new responsibilities, modestly states his belief that he is doing only what 90 per cent of the business men of the country are willing to do if called upon.

As chairman of the Liberty Loan committee representing automobiles and accessories, he has been active in floating both the first and second bond issues.

SERVICE PERSONALS.

Seymour Hadaway, a foreman in the making department of Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut, has received a commission as captain in the United States Army and will go to France, where he will have charge of the repair work on boots and shoes.

George B. Hodgman, Jr., eldest son of the president of the Hodgman Rubber Co., Tuckahoe, New York, is a second lieutenant in the 302nd Regiment, Field Artillery, stationed at Camp Devens, Ayer, Massachusetts. A second son, Alfred P. Hodgman, a member of the American Ambulance Field Service, is now driving an ambulance in France, while S. Theodore Hodgman, Jr., son of S. Theodore Hodgman, treasurer of the company, is a member of the same unit.

William C. O'Neil, former city treasurer of Chicopee, Massachusetts, and until recently holding a responsible position with the Fisk Rubber Co., Chicopee Falls, Massachusetts, has been appointed a corporal in the fourth divisional training battalion at the Ayer cantonment.

Roscoe M. Gage, formerly chief chemist of the New Jersey Car Spring & Rubber Co., Jersey City, New Jersey, is now serving as first lieutenant of the Sanitary Corps, United

States Army, and is on active duty in the Gas Defense Service.

Twenty-five former employes of the McGraw Rubber Co., East Palestine, Ohio, and now members of Company C, 134th machine gun company, are to receive a present of \$100 each from the firm.

Horace A. Bailey, son of C. J. Bailey, Boston, Massachusetts, is a member of the Motor Corps, Massachusetts State Guard.

Lyman C. Baird, formerly an assistant engineer of the Firestone Tire & Rubber Co., Akron, Ohio, has received a lieutenant's commission and is now in training with the Mechanical Engineering Division of the Aviation Section at Camp Kelly, San Antonio, Texas. Mr. Baird is a graduate of the University of Minnesota and the Massachusetts Institute of Technology.

A beautiful home wedding occurred October 11 at the residence of F. A. Seiberling, president of the Goodyear Tire & Rubber Co., Akron, Ohio, where his eldest son, Lieutenant J. Frederick Seiberling, Battery A of Cleveland, and now stationed at Fort Benjamin Harrison, took as his bride Miss Henrietta Buckler, daughter of Judge Julius Buckler, of El Paso, Texas. This romance had its inception last winter while Battery A was stationed on the Mexican border.

Two sons, the only children of William A. Johnston, president of The Rubber Products Co., Barberton, are doing active military service. Captain Joseph J. Johnston, the elder, was formerly with the crude rubber department of the Firestone Tire & Rubber Co., Akron, Ohio, and has been in active service since June, 1916, spending the fall and winter on the



CAPT. JOSEPH J. JOHNSTON CADET GEORGE E. JOHNSTON
SONS OF WILLIAM A. JOHNSTON, PRESIDENT OF THE RUBBER
PRODUCTS CO.

Mexican border. He is now located at Camp Sheridan, Montgomery, Alabama, with the 62d Field Artillery. The other son, George E. Johnston, who was formerly with the real estate department of the Firestone Tire & Rubber Co., Akron, Ohio, joined the Officers' Reserve Corps at Camp Benjamin Harrison in May, 1917. On July 22 he passed the aviation examination and was transferred to the United States wing of the Royal Flying Corps at Toronto, Canada, where he is now located.

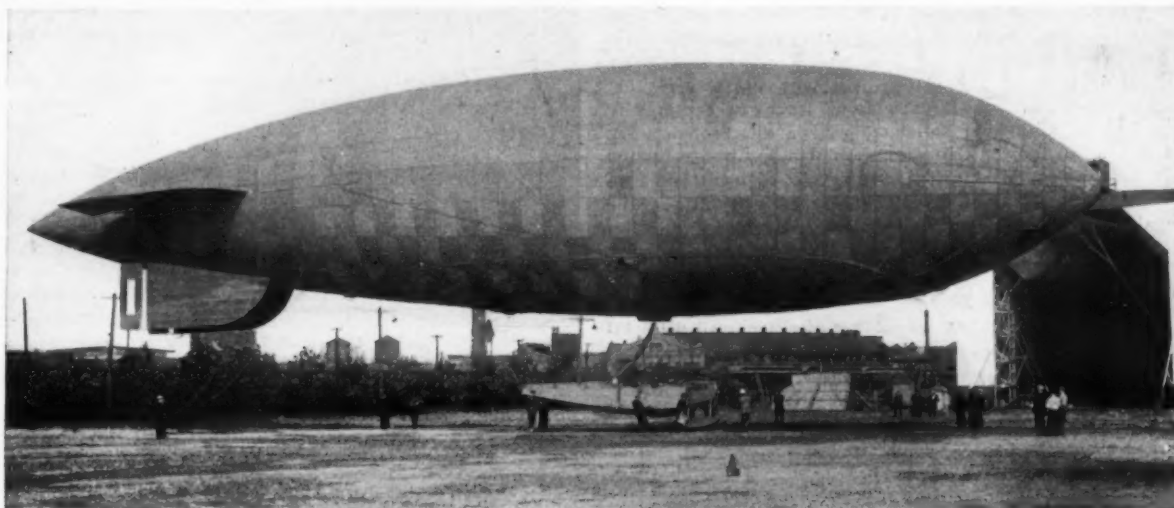
Godfrey L. Cabot, Boston, Massachusetts, dealer in carbon black, and a member of the Naval Reserve Corps, is lending pecuniary support to the development of Rear Admiral Fisk's

ideas for a torpedo-carrying seaplane, believing them to be of the utmost value to the United States navy. He has donated \$30,000 for the construction of an experimental plane to demonstrate the practicability and advantages of this type of fighting airship, which he hopes the navy department will soon adopt. Meantime, in connection with such a seaplane, he is working out a scheme of his own for an electro-magnetically operated device to carry and launch a gyroscopically controlled torpedo, weighing

AVIATION PROGRAM PROGRESSING RAPIDLY.

The development of the "Liberty motor" is being followed by highly satisfactory progress in the equipment of the aerial branch of the Army.

Contracts have been let and work is in progress on practically the entire number of airplanes and motors for which provision was made in the \$640,000,000 aviation bill passed by Congress in July, which called for more than 20,000 airplanes.



Courtesy of "Flying."

ONE OF THE COAST PATROL DIRIGIBLES ACCEPTED BY THE NAVY DEPARTMENT.

about 1,500 pounds and having a radius of action of about 2,000 yards. Mr. Cabot is a brother of the late Samuel Cabot, of Samuel Cabot, Inc., Boston, Massachusetts, whose advertisement of lampblacks especially for rubber manufacture, has appeared regularly in *THE INDIA RUBBER WORLD* since its first issue, October, 1899.

Captain Ernest E. Buckleton, who has met with such success in raising money for Belgian relief and Red Cross work, has during the past month turned his attention to the Liberty Loan and given numerous fifteen-minute talks in Trenton, Akron and elsewhere.

On October 23, representatives of the leading American rubber footwear factories held a conference with government officials at Washington and contracts were awarded for 30,000 pairs of hip rubber boots for our troops. Other orders are to follow.

The comprehensive plan is that, when motors are ready, there shall be ready also the planes necessary; and when the motors and planes are ready, aviators and machine guns shall be available. Coordination has been developed in every branch of the Aviation Section.

Satisfactory progress is also being made in the construction of the sixteen coast patrol dirigibles for the Navy Department. One of these, the first of the two constructed by The B. F. Goodrich Co., Akron, Ohio, is shown at close range in an accompanying illustration. Built under the personal direction of Henri Jullist, the noted pioneer French aeronautic engineer, and piloted during its trials by the veteran American dirigible pilot and constructor, Roy Knabenshue, this great aircraft was accepted by the government September 22. A Goodrich Kite balloon was recently purchased through the Navy Yard, Washington, D. C.



OHIO INFANTRYMEN IN TRENCH BOOTS.

RUBBER TUBING FOR AIRPLANE GASOLINE LINES.

At the meeting of the Aviation Division of the S. A. E. Standards Committee at Washington, D. C., September 30 and October 1, John B. Tuttle, associate chemist of the Bureau of Standards, presented a brief report on rubber hose for gasoline connections and stated that a tube had been developed recently by one of the large American rubber companies which seemed to meet all airplane requirements. The difficulty in the past has been that when rubber is used for carrying gasoline it swells and the effective inside diameter is very much reduced.

C. M. Manly, of the Curtiss Airplane Corp., said that neither the British nor French aerial forces at the present time had an altogether satisfactory type of gasoline tube; yet M. R. Riddell, of Canadian Aeroplanes, Limited, stated that, because flexible metal tubing developed leaks and copper tubing often failed owing to excessive vibration, the Royal Flying Corps now insists on rubber tubing for gasoline. Metal tubing is still being used for oil and air lines.

AMERICAN HELMETS TO HAVE RUBBER SHOCK ABSORBERS.

In the front line trenches, the soldiers of virtually all the fighting nations now wear steel helmets resembling those of the armored knights who fought on the same battlefields in the Mid-



AMERICAN STEEL HELMET.

dle Ages. Realizing the defects of the crude German helmet, the French and British have introduced numerous improvements for the greater safety and comfort of the wearer. A new type of American headgear, which will probably be adopted by the United States army, incorporates the best features thus far developed, discards defects and incorporates innovations, notably rubber cushions for the shock-absorbing appliances and protection for eyes and nose.

The new helmet, shown by an accompanying illustration, has a low, round crown, offering the least resistance to either direct or glancing hits, a wide sloping brim to protect the neck and a visor extending well back toward the ears and having a beak-like nosepiece flanked by deep eye slits. This visor is hinged and can be pushed upward, uncovering the face when not in danger. A shock absorbing cushion to direct hits and a circular "give" to glancing hits is insured by an ingenious skull cap of felt, covered with smooth oilcloth, which is attached to the inside of the helmet by a hook and eye in the crown. Thus the skull cap fits the head snugly, while the helmet is circularly movable about it, tending to cause bullets to swerve away with a minimum of damage.

ARMY TRACTORS WITH RUBBER TIRES.

Solid rubber tires with grooved or block treads, on heavy iron wheels about six feet in diameter, form a new and interesting

feature of the great motor tractors which are being constructed to replace the historic army mule and which will be employed



Copyright, Underwood & Underwood.

AMERICAN ARMY TRACTOR WITH SOLID RUBBER TIRES.

for hauling supplies and heavy artillery for the American forces in France.

THE TIRE SITUATION IN THE CENTRAL EMPIRES.

Victor Van der Linde, special technical representative of The B. F. Goodrich Co., of Akron, Ohio, just back from Europe, gives the following interesting facts concerning the tire situation in the Central Empires and in certain neutral countries:

The only automobile in Germany running on pneumatic tires is Kaiser Wilhelm's. Even the Crown Prince is denied this luxury. Along with Von Hindenburg, Ludendorff, Von Mackensen, he bumps along to the front on tires filled with rags, compressed cork and paper.

The situation of both Germany and Austria, as concerns tires, is truly deplorable. Countries bounding the Central Empires, with the exception of those that are at war with them, are in just as bad plight.

Some have even been filled with sand and dirt. This refers only to those cars that have ragged casings left. Most automobiles have ground away their shoes and move about on rims bound with rope.

There is not a bicycle tire left in Germany outside of those on military bicycles. Raids by the wholesale have been conducted on shops and residences and all bicycle tires seized. These and in fact everything in rubber have been reclaimed for motor tire construction and submarine battery cells.

Germany had little crude rubber in stock at the outbreak of the war. Since then she has been depending on what she could smuggle through the mails and what she could buy from Sweden. Single sheets of rubber were sent in letters from the United States until Great Britain opened these and confiscated the contents. After this channel had been closed she purchased large numbers of automobiles in this country and had them shipped to Sweden. There she stripped the automobiles of the tires and abandoned brand new machines to the Swedes. But now Great Britain permits no cars shipped to Sweden with tire equipment.

Mr. Van der Linde gave the prevailing price of tires in the following countries: Germany and Austria, none to be had; Sweden, \$550 for a tire if you have a permit from the Royal Automobile Club; Norway, \$460 with permit; Denmark, \$320 for a tire if you can find one and give written assurance to the government that it will not go to Germany; Holland, \$350 for a tire with government guarantee; Russia, \$100 for one tire; Great Britain, \$90; France, \$90; Italy, \$100; Spain, \$125.

In Sweden there are 10,000 automobiles. There are 1,000 in operation and on tires from which has disappeared all semblance of the original casing. Tires hold twenty and thirty patches. Sweden has been placed in this predicament because of the number of tires that have gone to Germany from its ports. England has denied it rubber supplies. Tires are scarcer there now than diamonds.

RUBBER GOODS FOR THE DOGS OF WAR.

It is a well-known fact that dogs are among the most valiant fighters in freedom's cause on the French and British fronts in France. These "friends of man," that have proved so useful as messengers to advanced posts under fire and in Red Cross rescue work, deserve and are receiving a degree of humane treatment second only to that of their masters. Subject as they are to the dangers of gas attacks and "trench feet," the accompanying illustrations show what the rubber industry has provided for them in gas masks and trench boots. Rubber sheeting and mats for kennels and waterproof clothing for rainy days have also been utilized to a certain extent.



RUBBER STORM SHOE FOR DOGS.

ARTICLES REQUIRING NO EXPORT LICENSES.

According to the ruling of the Exports Administrative Board now in force, the articles and commodities named in the following list, all of interest to the various rubber and allied trades, do not require export licenses *except when shipped to Germany, her allies or neutral countries of Europe*: acetic acid, all aniline direct colors, asbestos, balata sheets, Bismark brown, black tire tape, brake lining, carbon black, magnesia, gilsonite, glue, hose including water, rubber, duck and clamps; hydrated lime, imitation leather, ochre, paraffin, fountain pens and parts, pine tar, rubber, rubber cement, shellac, silex, starch, syringes, tar and tar oil, tire rims, ultramarine blue, vulcanizers and parts, waterproofing if not wool, waterproofing solutions, wax and zinc oxide.

Announcement has recently been made by the Bureau of Export Licenses that licenses are granted in the order of their receipt and no facilities are given to the applications of any one firm over another to warrant charging fees for this service.

AMERICAN STEAMSHIPS REQUISITIONED.

The commandeering on October 15 of all American steam vessels of 2,500 deadweight tons capacity lends a sense of security to the rubber industry, dependent as it is upon ships for the importation of its principal raw material. The vital importance of most rubber manufactures in warfare renders it certain that an adequate supply of crude rubber may be depended upon under government routing for the duration of the war. A total of 468 private-owned merchant steamers, aggregating a deadweight capacity of 2,878,000 tons, are involved, and many former coastwise ships will be diverted to long routes overseas. Standard chartering rates, materially lower than the world's existing commercial rates, have been established.

THE CONSERVATION LIST.

The list of commodities thus far announced by the Exports Administrative Board, conservation of which is necessary on account of the limited supply and the needs of the United States in its successful prosecution of the war, includes the following of interest to the rubber and allied industries: acetone, alcohol, aluminum, ammonia and its salts, caustic soda, glycerine, nitric acid, sulphur, sulphuric acid, toluol and vegetable oils.

The board has practically prohibited exportation of these

articles. Export licenses may be granted, however, for the above articles when destined for actual war purposes, or when they will directly contribute thereto; and in certain unusual cases where such exports will contribute directly to the immediate production of important commodities required by the United States; also in certain other cases where the articles may be exported in limited quantities without detriment to this country.

BRITISH COTTON CONSUMPTION UNDER CONTROL.

Early last summer, the growing shortage of raw cotton and consequent sharp rise in price in England compelled the British government to regulate the cotton market, to stop speculative dealings in cotton futures and to control prices. The purchase of cotton was also prohibited except under license. By

the issue of general licenses, entire freedom was given for the purchase of cotton abroad on c. i. f. or f. o. b. terms, but it was decided to grant licenses for the purchase of cotton in Great Britain for only one week's consumption at a time, and only to spinners having less than two week's supply in stock, the idea being to conserve the stocks at Liverpool for urgent requirements while refraining from anything likely to impede fresh importation. A census of cotton stocks showed no immediate prospect of insufficient quantities of Egyptian or other kinds of cotton except American and Peruvian, and accordingly on August 3 a general license was issued permitting the purchase of all kinds other than the two last mentioned.



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WAR DOG WEARING A GAS MASK.

On August 9 the Control Board issued an order restricting consumption by limiting the number of spindles on looms that may be operated in any mill except under license to 60 per cent of the total. Licenses to operate excess machinery are granted on payment of levies, which are to be used for the relief of operators temporarily thrown out of work as the result of the restriction. Licenses are being granted up to 100 per cent to users of Egyptian cotton, but only up to 70 per cent to users of American cotton unless a substantial proportion of the output is for the British or allied governments. The levies are 1¼d. per mule spindle and 1¾d. per ring spindle, 2s. 6d. per loom under 72 inches reed space, and 5s. per loom over 72 inches.

GERMAN PATENTS AND PROCESSES AVAILABLE UNDER LICENSE.

In accordance with the "Trading With the Enemy Act," approved by Congress October 6, 1917, the Federal Trade Commission has been empowered by President Wilson to grant licenses for the duration of the war, legalizing such use of any patents, processes, trade-marks or copyrighted material owned or controlled by an enemy, or an ally of an enemy, as may be deemed for the public welfare. Such a license will be held a complete defense to any suit instituted by the enemy owners for infringement, damage or royalty.

Volumetric Determination of Free Sulphur in Soft Rubber Compounds.

By H. S. Upton, Chemist for the Atlantic Insulated Wire & Cable Co.

Read at the meeting of the Rubber Section of the American Chemical Society, September, 1917.

THE published and accepted methods of determining free sulphur in a rubber compound are more or less tedious, and where manufacturing operations are dependent upon them, are the cause many times of serious delays, as well as expense due to delayed operations and cost of materials and time incident to the determining process. It was with this in mind that the following method was evolved, and results obtained, both in conservation of time and materials and also in accuracy of results, lead us to believe it may be of interest to others who are using the present day accepted methods.

PRINCIPLE OF METHOD.

The formula generally given for the oxidation of sulphur by a water solution of potassium hydrate is:—



This varies with change of conditions. When using an alcoholic potash solution instead of potash in water, more thiosulphate is formed than is indicated in the equation and in some cases the conversion to this product is complete. Using this principle, a method has been worked out which, briefly, is as follows:

The dried acetone extract from the rubber compound is treated with alcoholic potash, converting the free sulphur into thiosulphate and sulphide. These products of reaction are titrated separately with a standard iodine solution. The sum of the results found gives the total free sulphur.

REAGENTS REQUIRING SPECIAL MENTION.

(a) All reagents used are chemically pure. Tap water may be used if free from sulphur or any ingredients effecting analysis, otherwise use distilled water.

(b) ALCOHOLIC POTASH: 50 gr. of alcoholic potash sticks are dissolved, with occasional stirring, in one liter of 95 per cent alcohol and allowed to stand twelve hours. After filtering by suction through a Gooch crucible and asbestos, it is ready for use.

(c) N/25 STANDARD IODINE SOLUTION: 5 gr. of iodine are dissolved in potassium iodide and water and made up to a liter. It is standardized against N/25 arsenous acid.

(d) ZINC AMMONIUM CHLORIDE SOLUTION: 10 gr. of zinc oxide are dissolved with dilute hydrochloric acid. The solution is made alkaline with ammonia, specific gravity 0.90, adding 50 cc. in excess. The solution is now made up to a liter.

PROCEDURE.

Extract a two gr. sample of rubber compound with acetone into a 300 cc. Erlenmeyer flask until the free sulphur has been removed. A similar compound, which is known to be free of free sulphur, is tested at the same time. This is used to determine the blanks in the subsequent titrations.

Evaporate the acetone gently until little remains, completing the drying in an oven at 100 degrees C. This operation need not take longer than a half hour. The sulphur in the dried extract is oxidized to thiosulphate and sulphide with 25-50 cc. of alcoholic potash solution by boiling gently for one hour, using a small glass funnel placed in the neck of the flask for a condenser. Remove from heat. Wash and remove funnel from flask. Add 25-50 cc. of ammonium zinc chloride solution and just bring to boiling. This precipitates the sulphide as its zinc salt, leaving the thiosulphate in solution.

Hasten cooling by whirling in cold water. Acidify with glacial acetic acid having three cc. in excess. Dilute to 200 cc. Titrate with iodine and starch. This gives the sulphur present as thiosulphate. The precipitate of zinc sulphide is not acted upon by the acetic acid.

Add ammonium hydrate to destroy the acidity and a trace of iodine. Add hydrochloric acid to acidity, having five cc. in excess. This dissolves the zinc sulphide and liberates hydrogen sulphide. Titrate the liberated sulphide with iodine and calculate to sulphur. The titration in each case is carried to a permanent blue lasting half a minute. The end point is generally very distinct.

The determination of thiosulphate is called, letter (a) titration, and that of the sulphide, letter (b) titration. The sum of (a) and (b) titrations gives the total free sulphur. The sulphur free sample is tested at the same time as the sample containing free sulphur and blanks for (a) and (b) titrations found. In a straight rubber compound, blank (a) is about one cc., and blank (b) is five tenths of a cc. of iodine. Often all the sulphur in a pure rubber compound is converted completely to thiosulphate and (b) titration may be omitted. When this is the case make the solution acid with hydrochloric, adding five cc. in excess, and carry out the determination as for thiosulphate, instead of making acid with acetic.

It is important that the solution should be kept cool during the determination. The different reagents should be measured, as their quantity tends to vary the results. Solutions should be kept to approximately the same volume, as this effects the iodine blank. 200 cc. of solution is a convenient volume to work with. In the process of treating sulphur with alcoholic potash, a white crystalline precipitate of potassium thiosulphate is sometimes found. This is almost insoluble in 95 per cent alcohol but dissolves readily in the more dilute solution. Potassium sulphohydrate (KSH) may be formed by the action of alcoholic potash, but it is oxidized to potassium sulphide when the potash is present in excess. The standard iodine solution is determined at least twice a week, as it becomes weaker on standing, due to the volatilization of the iodine.

FACTORS AND CALCULATION.

It is very convenient to use factors in calculating the results. The factor for (a) titration of sulphur is .50536 times the value of one cc. of standard iodine solution. This is found from the following equation:



Factor for (b) titration for sulphur is .12630 times the value of one cc. of standard iodine solution, and is found from the following equation:



An example of calculation, where .0328 grams of sulphur or 1.64 per cent on a two gr. sample was known to be present, is as follows:

- 1 cc. standard iodine = .005139 gr. of iodine.
 (a) Titration—1 cc. standard iodine = (.005139 × .50536) or .002597 gr. of S
 (b) Titration—1 cc. standard iodine = (.005139 × .12630) or .000649 gr. of S
 Blank (a) = 1.00 cc. Blank (b) = 0.50 cc.
 (a) Titration requires 12.00 cc. — 1.00 cc. (Blank) = 11.00 cc. of iodine
 11.00 cc. × .002597 ÷ 2 gr. sample = .0143 gr. of sulphur
 (b) Titration requires 5.80 cc. — 0.50 cc. (Blank) = 5.30 cc. iodine
 5.30 cc. × .000649 ÷ 2 gr. sample = .0017 gr. of sulphur
 (a) Titration + (b) titration = .0160 gr. or 1.60 per cent of sulphur found

By this method one tenth gr. of sulphur may be titrated with good results. There has not been time to experiment with larger amounts of sulphur.

Some actual determinations by this method are here given. They are average results from a large number of determinations of many different compounds.

COMPARISON OF UPTON AND FUMING NITRIC ACID METHODS FOR DETERMINING FREE SULPHUR IN VULCANIZED RUBBER.

Sample No. of Material Tested.	Weight of Sample Taken for Analysis.	Weight of Acetone Extract Tested for Sulphur (Per Cent).	Sulphur Equivalent in Grams per cc.	(A)—Titration No. of cc. of Standard Used.	(A)—Blank No. of cc. of Standard Used.	(B)—Titration No. of cc. of Standard Used.	(B)—Blank No. of cc. of Standard Used.	Per Cent of Free Sulphur by New Method.	Per Cent of Free Sulphur by Fuming Nitric Method.
1	2.0000	4.00	{ (a) .002598 }	2.30	1.00	0.40	0.50	0.16	0.21
2	2.0000	4.00	{ (b) .000647 }	1.20	1.00	0.40	0.50	0.03	0.15
3	2.0000	4.00	{ (b) .000647 }	4.00	1.00	0.40	0.50	0.39	0.37
4	2.0000	4.00	{ (b) .000647 }	3.80	1.00	0.85	0.50	0.38	0.30
5	2.0000	4.00	{ (b) .000647 }	3.70	1.00	0.35	0.50	0.35	0.39
6	2.0000	4.00	{ (b) .000647 }	2.65	1.00	0.25	0.50	0.22	0.22
7	2.0000	4.00	{ (b) .000647 }	2.50	1.00	0.25	0.50	0.20	0.21
8	2.0000	4.00	{ (b) .000547 }	2.05	1.00	0.25	0.50	0.14	0.16
9	2.0000	4.00	{ (b) .000647 }	1.55	1.00	0.25	0.50	0.07	0.12
10	2.0000	25.00	{ (b) .000647 }	12.95	1.00	6.70	0.50	1.75	1.65
11	2.0000	25.00	{ (b) .000647 }	12.45	1.00	4.75	0.50	1.61	1.58
12	2.0000	28.50	{ (b) .000647 }	12.00	1.00	5.80	0.50	1.60	1.64
13	2.0000	22.85	{ (b) .000647 }	14.40	1.00	2.50	0.50	1.81	2.08
14	2.0000	22.85	{ (b) .000647 }	15.70	1.00	2.70	0.50	1.98	2.13
15	2.0000	24.50	{ (b) .000647 }	10.10	1.00	2.40	0.50	1.29	1.40
16	2.0000	25.00	{ (b) .000647 }	9.30	1.00	4.70	0.50	1.21	1.33
Smoked sheet cured with 5 per cent sulphur...	1.0000	8.00	{ (a) .002586 }	18.70	1.00	0.90	0.50	4.62	4.53
	1.0000	8.00	{ (b) .000646 }	17.70	1.00	2.80	0.50	4.48	4.48
	1.0000	8.00	{ (b) .000646 }	18.70	1.00	0.60	0.50	4.60	4.62
	1.0000	8.00	{ (b) .000646 }	17.00	1.00	0.30	0.50	4.14	4.44

The most active types of various substances liable to react with the reagents were tested to see if they would interfere with the determination. Linseed oil, while not used extensively in rubber compounding, is chosen for this reason, for it has high saponification, iodine absorption and oxidation values. These determinations are carried out according to the procedure for free sulphur in rubber compounds. The following is a tabulation of results.

A much larger quantity of material in each case is tested than would be present in an analysis. Only starch seemed to have any effect which would interfere with the determination. It

is well known that correct results are impossible in an iodine titration with much starch present. Starch would not be liable to occur in a rubber mixture and at least would not appear in the acetone extract. The values of this method are its accuracy, ease of manipulation, rapidity, and cheapness.

When the dried acetone extract from a rubber compound is obtained, eighteen samples may easily be determined in two hours and a half. The operator need not spend more than an hour's time in actual manipulation. This method may be used to determine sulphur, and mixtures of soluble sulphides and thiosulphates.

ACCURACY OF UPTON METHOD FOR FREE SULPHUR IN VULCANIZED RUBBER.

Material Tested.	Weight of Sample Taken.	Weight of Extract Tested for Sulphur.	Standard Iodine Value in gr. per cc.	(A)—Titration No. of cc. of Standard Used.	(A)—Blank No. of cc. of Standard Used.	(B)—Titration No. of cc. of Standard Used.	(B)—Blank No. of cc. of Standard Used.	Weight of Free Sulphur Found by New Method.	Weight of Free Sulphur Present.
Blank of Reagents.....	.....	.....	.005121	.....	0.60	.....	0.30	.....	.....
" " .....	.....	.....	.005121	.....	0.50	.....	0.35	.....	.....
Sulphur	0.0200	.....	.004798	8.10	0.60	5.40	0.40	.0200	.0200
Sulphur	0.0200	.....	.004798	8.00	0.60	5.15	0.40	.0200	.0200
Sulphur	0.0200	.....	.005121	8.35	0.60	3.80	0.40	.0211	.0200
Sulphur	0.1000	.....	.005141	32.60	0.60	24.90	0.40	.1007	.1000
Potato Starch	0.5000	.....	.004727	14.55	0.60	0.75	0.40	.0326	.0200
Potato Starch	0.5000	.....	.004727	13.65	0.60	0.75	0.40	.0304	.0200
Potato Starch	0.5000	.....	.004727	13.20	0.60	1.70	0.40	.0300	.0200
Potato Starch	0.5000	.....	.004727	12.55	0.60	1.85	0.40	.0286	.0200
Potato Starch	0.5000	.....	.004727	13.50	0.60	0.40	0.40	.0300	.0200
Potato Starch	0.5000	.....	.004727	14.25	0.60	0.40	0.40	.0316	.0200
Potato Starch	0.5000	.....	.004727	14.20	0.60	0.40	0.40	.0316	.0200
Potato Starch	0.5000	.....	.004727	13.40	0.60	0.40	0.40	.0296	.0200
Rosin	0.0500	.....	.005121	8.00	0.60	3.60	0.40	.0201	.0200
Rosin	0.0500	.....	.005121	8.00	0.60	3.75	0.40	.0203	.0200
Linseed Oil	0.0500	.....	.005121	8.70	0.60	3.60	0.40	.0219	.0200
Linseed Oil	0.0500	.....	.005121	8.00	0.60	4.40	0.40	.0207	.0200
Linseed Oil	0.0500	.....	.005121	8.50	0.60	4.20	0.40	.0219	.0200
reagents	1.0000	4.18	.005121	.....	0.70	.....	0.40	.....	.....
reagents	1.0000	4.00	.005121	.....	0.70	.....	0.50	.....	.....
reagents	1.0000	3.90	.005121	.....	0.80	.....	0.30	.....	.....
reagents	1.0000	4.16	.005121	.....	0.85	.....	0.55	.....	.....
reagents	1.0000	3.50	.004768	.....	1.00	.....	0.30	.....	.....
reagents	1.0000	3.80	.004768	.....	1.00	.....	0.30	.....	.....
reagents	1.0000	4.00	.004768	.....	0.80	.....	0.30	.....	.....
reagents	1.0000	4.00	.004768	.....	0.80	.....	0.35	.....	.....
cane sugar.....	1.0000	.....	.004727	8.85	0.60	5.50	0.40	.0221	.0200
cane sugar.....	1.0000	.....	.004727	8.90	0.60	5.60	0.40	.0222	.0200
mineral rubber..	1.0000	.....	.004727	10.00	0.60	2.80	0.40	.0220	.0200
mineral rubber..	1.0000	.....	.004727	10.00	0.60	2.70	0.40	.0229	.0200
Ceresine	1.0000	.....	.004727	10.70	0.60	3.10	0.40	.0249	.0200
Ceresine	1.0000	.....	.004727	9.15	0.60	3.55	0.40	.0210	.0200

Acetone extract smoked sheet rubber to determine blank with.....



Huddleston Photo Co.

VIEW OF THE TOWN OF GOODYEAR, ARIZONA. FOUNDED BY THE SOUTHWESTERN COTTON CO., JUNE, 1917. FROM A PHOTOGRAPH TAKEN JULY 1, 1917. THIS TRACT WAS A DESERT JANUARY 1, 1917.

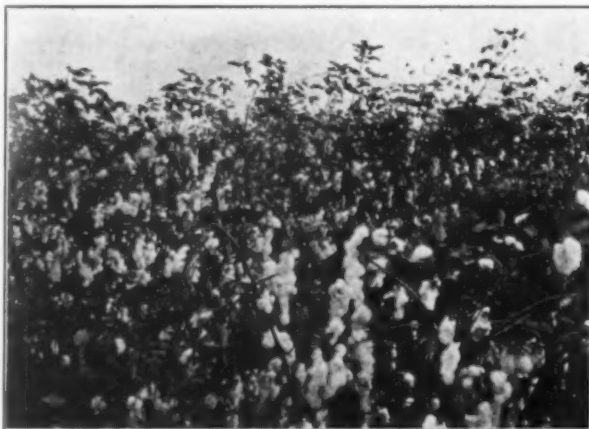
Rubber Men Plant Long Staple Cotton in Arizona.

FOR some time it has been realized in the rubber industry that the world's production of long staple cotton would not be equal to the extraordinary demand for this particular staple. That the present acreage planted must be greatly increased to guarantee a sure supply of this raw material so necessary in rubber manufacture, has been fully anticipated by those who are in a position to know. Recently the problem has become aggravated by the British embargo on Egyptian cotton, the boll weevil menace to the Sea Island crop and the difficulties of ocean transport prevailing at this time. The long staple cotton requirements of the rubber trade for the present year will be unusually large and are conservatively estimated at 175,000 bales of Egyptian, 100,000 bales of Sea Island and 50,000 bales of American Peeler cotton.

The threatened curtailment of a raw material of such prime necessity to rubber manufacture as cotton has shown far-seeing members of the trade the expediency of developing new fields of production where long staple cotton may be successfully grown. Experts have been employed to investigate the sources of long staple cotton in North and South America, with the object of determining the most advantageous fields for growing this staple. It was found that the Salt River Valley in Arizona gave promise of becoming one of the greatest long staple cotton producing districts of the world. Here the soil is found to be very rich, the sunshine abundant, the growing season long and, thanks to the foresight of the government, water is plentiful.

The Department of Agriculture, after extensive experiments and careful cultivation extending over a period of several years, discovered that by forced irrigation the best variety of Egyptian cotton could be raised successfully in this valley. As early as 1911, carefully selected seeds of Egyptian cotton were furnished by the government to the farmers of this section and cultivation

was started in a small way. While the plantings were not a success at first and resulted in failure, due wholly to inexperience and lack of money, the crops of later years have successively shown better results and success has finally been the reward of persistent effort. The cotton growing productiveness of this section by irrigation has long been known, but the crops were uncertain without the assurance of a dependable water supply. Now, however, this has all been changed by the Roosevelt dam, one of the greatest irrigation projects known to the world, and miles upon miles of land reclaimed from the desert are now awaiting modern irrigation and cultivation methods to produce abundant supplies of long staple cotton for the rubber industry.



From U. S. Department of Agriculture's Circular, No. 123.

EGYPTIAN COTTON IN THE FIELD.

From a production of 200 bales in 1912, the output of Egyptian cotton in the Salt River Valley has increased to 4,000 bales in 1916, and it is estimated that 35,000 acres will be planted this year, producing 18,000 bales of cotton valued at \$5,000,000—a remarkable tribute to six years of American enterprise. This calls to mind the beginning of the British rubber planting industry, when 4 tons of rubber were produced in 1900, while for the present year the world's production of plantation rubber will doubtless be close to 190,000 tons.

Arizona cotton being new on the market, the govern-

ment has established the following grades for the benefit of cotton buyers:

FANCY.—Clear and clean and of cream color, allowing about as much leaf as Strict Good Middling and equivalent to Extra Fine Egyptian Sakellarides.

EXTRA.—Clear, creamy or of slight color, leaf allowed equal to Good Middling, United States Official Standard, and equivalent to Fine Sakellarides Egyptian.

CHOICE.—Allows color after frost and is equivalent to Good Sakellarides Egyptian.

MEDIUM.—Leaf equal to Strict Low Middling, United States



Huddleston Photo Co.

VIEW OF A PORTION OF THE 5,000 ACRE TRACT AT GOODYEAR, ARIZONA, OWNED BY THE SOUTHWESTERN COTTON COMPANY. FROM A PHOTOGRAPH TAKEN JULY 1, 1917, SHOWING MAIN ROAD, IRRIGATION DITCHES AND GROWING COTTON. THIS TRACT WAS A DESERT JAN. 1, 1917.

Official Standard, and equivalent to Strictly Good Fair Sakellarides Egyptian.

There are three staple lengths of Arizona cotton, the Sacaton staple being the best, and equivalent in length to the best imported Sakellarides. The next is called River staple, and compares equally with the best Jannovitch Egyptian grades. The third is called Valley staple, and is equal in length to the best Mitafifi variety.

A word about ginning and baling Arizona-Egyptian cotton. This should receive careful attention as spinners are accustomed to a product that is more carefully handled than American Uplands. Roller gins must be used and leaves, seeds and other trash in the cotton should be removed before it goes to the press. The cleanness or "grade" is a very important factor in the value of a fancy cotton of this character.

The bales should present a neat appearance, comparable to those exported from Egypt, and should be entirely covered with heavy burlap and the ends closed by sewing. A large representative sample of each bale should be taken during the ginning, so that it will not be necessary to cut open the bale in negotiating a sale.

With characteristic promptness, one of the largest rubber manufacturing companies formed the Southwest Cotton Company, early in the present year, with F. A. Seiberling, president, (also president of the Goodyear Tire & Rubber Co.); Edward F. Parker, vice-president and general manager; John P. Conduit, manager of operations; E. J. Carrillo, manager of construction; E. W. Hudson, agricultural adviser; E. D. Vincent, engineer in charge; R. C. Metzler, secretary and treasurer; Charles G. Steele, gin manager; A. B. Hinkle, Jr., cotton buyer.

Approximately 25,000 acres were leased or purchased in the valley near Mesa and Phoenix, Arizona, and operations were commenced in January toward changing the 9,000 acre tract of desert land near Mesa and 14,000 acres near Phoenix into productive cotton fields. Gasoline driven caterpillar tractors

were used to clear the land of brush, trees and cacti, root and branch, and to assist in the preparation of the land for planting. This project does not depend, however, on the Roosevelt Dam for water, as an ample supply is obtained by pumping from wells, the lift being from 54 to 57 feet. Despite the fact that this gigantic task was only commenced in January, it is confidently expected that 6,000 acres will be planted and harvested this season.

Another progressive rubber company to acquire land and commence cultivation of long staple cotton in this district, in order that a sure supply of fabric used in their product may be guaranteed, is the Firestone Tire & Rubber Co., of Akron, Ohio.

The Sampson Tire & Rubber Co., Los Angeles, California, is another rubber company reported as having acquired several thousand acres in the Salt River valley for planting cotton.

IMPERIAL VALLEY COTTON.

There is, however, another promising field for long staple cotton growing. In the Imperial Valley of southern California, the soil is an alluvial silt of such fertility that cotton may be grown each year without crop rotation, due to the yearly deposit of rich silt from the irrigation water. This is obtained from the Colorado River and is delivered to the planted areas by canals and ditches. Ample sunshine, a long growing season and water in plenty furnish ideal conditions for the production of long staple Egyptian cotton.



From U. S. A. Department of Agriculture's Circular, No. 123.

EGYPTIAN COTTON BALES IN ARIZONA.

It was in 1902 that the Department of Agriculture first planted a selection of Egyptian cotton seed at Calexico in the Imperial Valley, with excellent results. However, the industry was not actually commenced until 1909, when about 500 acres were planted with selected seed, the resulting product averaging three-quarters of a bale to the acre. Since then progress has been rapid, and in 1913 there were 20,000 acres under cultivation that produced 22,000 bales, while in 1915 the production was 28,500 bales, the estimated area under cultivation in 1916-17 being 98,000 acres.

Women Operatives in British Rubber Mills.

Special Correspondence.

THE question of dilution of labor has presented itself during the course of the war, first, as a result of the constant demand for men for the fighting forces, and second, owing to the enormous and ever-increasing demands for munitions wherewith to equip them. It has been, and still is, one of the most

difficult problems arising out of the war both for the employer and employee; for in addition to the effect that employment of women has had on trade and labor up to the present time, there still remain the difficulties of reconstruction and readjustment after hostilities have ceased.

Now that the United States has ranged itself on the side of the Allies, the experience of Great Britain will probably be repeated in the States, and the problem, no doubt, solved in due time, so that America may lack neither fighting men nor equipment to enable

them to take their proper part thoroughly in the struggle.

Generally, it may be said that in Great Britain the use of female labor was gradual in most trades, until at the present time there is hardly a single branch of trade that can be named in which women are not employed to a greater or less degree. Few men of military age are now to be found in banks, insurance or commercial offices, while in the factory, workshop and railways, and in many branches of agricultural labor, their services have been enlisted to an extent which, earlier in the war, would have been thought well-nigh impossible. No fewer than 1,500,000 women, not formerly at work, are now engaged in industrial pursuits.

As regards the rubber manufacturing industry, dilution of labor has been adopted in a great many departments which formerly were not considered particularly suitable for the employment of women. For example, in the case of the North British Rubber Co., Limited, one of the largest rubber manufacturing concerns in the British Empire, the demands for war material have been so great that female labor has had to be extended in order to achieve the increased output, and the continued call for men for service with the colors has further necessitated the employment of women.

Having regard to the fact that the rubber manufacturing industry has always been one particularly suitable to women in certain operations, and when one considers that in addition to these operations, a considerable amount of substitution has taken place in departments which were peculiarly regarded as men's work, it will be seen that female labor is playing no small

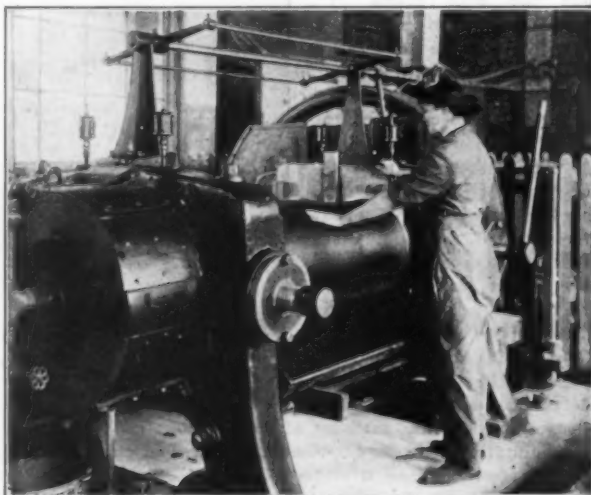
part in the rubber industry at the present time. Among the operations in which women are now substituted for men, may be mentioned the following: hanging and examining crude rubber; hand-cutting and lathe-cutting in sundries department; making up vacuum brake hoses; blowing off and stripping cycle tubes; various operations in the manufacture of motor tires; re-heeling and re-topping boots; making boot soles; examining and nail-studding boots; turning vulcanite; buffing in celluloid collar and cuff department; stock-keeping and despatching; band tire making; cloth spreading.

Certain of these operations are not altogether suitable for the employment of women, especially in departments where there is a great deal of machinery driven at high speeds, heavy lifting, high temperatures or atmosphere laden with naphtha fumes; but on the whole, with efficient superintendence and a proportion of qualified male operatives, the company has found women to produce fairly satisfactory work.

It is important that the superintendents or foremen in charge of the departments should exercise an increasing care over the manufacturing operations, as obviously, women who have had no previous experience in working and handling rubber in its various forms, could not be expected to judge as to whether the material has advanced into a sufficient stage of manufacture to pass forward to the next operation. Rubber manufacturers will appreciate that there is a big difference between many manufacturing and mechanical operations employed in the production of rubber goods and what may be called tending fool-proof automatic machines, such as are employed in munition works in the manufacture of shells, etc. Our experience has shown that where women have been put on to work at quick-running machines, necessitating constant attention to produce a certain output, they are physically unable to maintain a continuous interest, with the result that the production is affected, and therefore it is necessary to see that women of more than average physique are employed in these departments.



OPERATING A TUBING MACHINE.



STRONG WOMEN EVEN RUN MIXING MILLS.

The last edition of the Home Office and Board of Trade pamphlet on substitution in the rubber trades, gives the following list of occupations and processes as suitable for women, with the aid in some of them of lifting-tackle, holders, transporters, labor-saving machines and other appliances, or re-

organization. Complete substitution has been effected in the classes of work named except as indicated by the letter (A) or (P), the former indicating the employment of women only as assistants, and the latter only partially, a sub-division or rearrangement of the process having been made to facilitate substitution.

(1) MANUFACTURING PROCESSES.

Buffing. Exhaust ventilation and protective clothing required.

Cable covering with rubber. (P)

Calendering (rollers, drying cylinder work). (P) Skilled supervision.

Chemists' department. (P) Weighing out, sieving, and other light work.

Curing (cold or wet cure). Under special rules.

Curing (steam or dry cure). (P) (A) Lighter work.

Cutting of strip rubber and canvas.

Dry mixing. (P) Under supervision of skilled men.

Hose making up. (P) Heavy lifting done by men.

Lathe cutting. (P) Men set lathes.

Masticators (crushing and washing). Suitable for strong women only.

Measuring table. (P) (A) Replacing youths.

Molding (steam or hydraulic-press work). Platforms to enable women to reach top trays or presses. Good ventilation and general conditions required.

Pasting up of spreading cloths or on canvas.

Spreading. (P) Man sets gages. Lifting appliances may be required.

Trimming and examining tires.

Tubing machine attending. (A) Replacing youths.

Tire-making—pneumatic, motor, and motorcycle:-

(a) Case making. Machines and lifting tackle introduced.

(b) Inner tube making up, including also:-

(I) Jointing.

(II) Lapping and blowing off and on.

(III) Valve fitting.

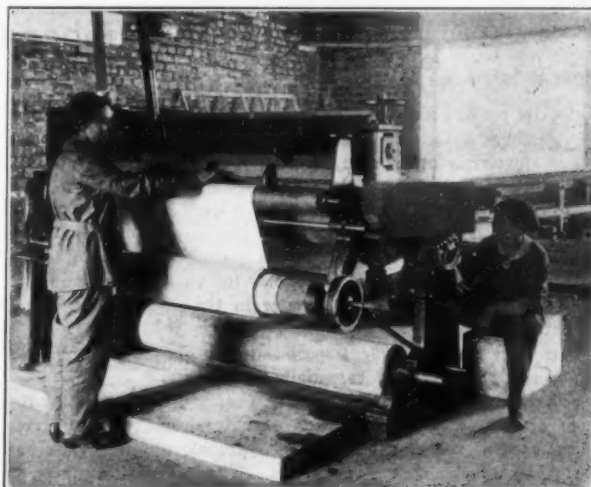
(c) Steel stud riveting.

(d) Tread building and fixing. Special machines and lifting appliances.

Tire-making—solid:-

(a) Cleaning and varnishing bands. Holders provided.

(b) Covering and rubbering bands or face building. (P) Men lift tires.



WOMEN IN OVERALLS RUNNING A SPREADER.

Warehouse work and packing. (P) Lighter work only.

Warming-up mills. (P) Under skilled supervision.

Washing rubber. Suitable for strong women only. Protective clothing required.

Waste reclaiming. On the smaller machines. Good stopping apparatus required for safety.

(2) MAKING UP.

Covering wringer rollers.

Cutting and skiving hot-water bottles, cushions, water beds.

Cutting garments (hand and machine).

Cutting rubber gloves.

Warehouse and packing. (P) Lighter work only.

GAS MASKS IN INDUSTRY.

Just as the simple breathing devices employed in chemical and other manufacturing plants as a protection from irritating fumes and vapors provided the immediate relief needed when the German gas attacks were first launched, so the greatly improved army gas masks of to-day now afford a degree of comfort and immunity from the injurious effects of daily exposure to noxious fumes such as never existed previously. Horrible as is this form of warfare, the perfection of the means with which to combat it may be regarded as one of the scientific and humane advances brought about by the war. It is surprising, however, how difficult it is to obtain suitable mouth respirators for use in chemical plants.

Respirator helmets such as are now used by the British forces at the front have been found very effective for vapors of acetaldehyde, crotonaldehyde, acetic acid, ammonia and nitrous fumes. This type consists of a face mask connected by a flexible rubber tube to a respirator box packed with animal charcoal, soda lime or other absorbents. Rubber and aluminum respirators fitted with sponges have proved more or less satisfactory for mercury vapors and dust, such as that from manganese acetate, also from acetic acid and nitrous fumes.

The Society of Automotive Engineers has laid out extensive plans for the winter season. The program includes a patriotic dinner in Chicago, Illinois, and a war dinner in New York City in January. During the New York show week there will be special meetings, one on aviation and the other on motor boats, and additional events are being planned, particulars of which are not yet ready to be divulged.



MAKING TRENCH BOOTS.

What the Rubber Chemists Are Doing.

VULCANIZATION WITHOUT SULPHUR.

OUR readers are familiar with the researches of the Russian chemist, Ostromislenski, on the vulcanization of rubber by materials other than sulphur, through the publication of his work in THE INDIA RUBBER WORLD, November 1, 1916.

Very recently a United States patent has been granted to Dr. Ostromislenski for a new process of vulcanization and the product resulting. The process is an interesting one, since it eliminates the time-honored use of sulphur for vulcanization and may possibly indicate a distinct advance in the development of the industry.

To quote from the patent specification in question, the process, in general, is described essentially as follows:

The invention consists in treating a mass of rubber with halogen or halogen-acid compounds of natural and synthetic rubbers, such as rubber chlorides and hydrochlorides, chlorides and bromides of the synthetic rubbers. These substances may be prepared by the direct action of halogens or halogen acids on solutions of rubber. The halogen compound, chloride or bromide of rubber, is first reduced to a fine powder and then combined with the rubber on the mixing rolls. The proportions employed are 10 grams of rubber and 7 grams of 2,3 dimethylethyrene rubber bromide. The material is placed in the vulcanizing press and heated for one and a half hours at 130 degrees C. The product is an ebonite-like mass.

As alternative procedures, 10 grams of rubber, 85 grams of natural rubber bromide heated at 130 degrees C. for two hours, produced a similar ebonite-like material. Seven grams of rubber heated with 10 grams of cauprene bromide at 130 degrees C. for two hours gave a similar result. Three-tenths gram of rubber, heated with 3.6 grams of cauprene chloride at 130 degrees C. for two hours and twenty minutes, gave an ebonite-like mass only superficially colored black.

The substances thus obtained are similar in color to ordinary ebonites, and possess equal stability and physical properties. They do not conduct electricity, may be easily cut and polished and retain the luster even in damp air.

Soft rubber may be produced by vulcanization with hydrochlorides of natural rubber. The preferred proportions given are one part of natural rubber heated with 16½ parts of hydrochloride of natural rubber at 130 degrees C. for two hours. The resulting soft rubber is generally applicable where soft rubbers produced by sulphur vulcanization have been used.

A similar form of vulcanization takes place when unvulcanized rubber is subjected to the action of an ozonide of rubber.

This ozonide may be prepared by subjecting layers of rubber from one-half to one-millimeter in thickness to the action of a stream of dried air under the influence of the rays of a mercury lamp. After an increase in weight of the original rubber from two-tenths to one per cent is secured, the product is milled on cold rollers and then reheated for one to 15 minutes at 100 to 120 degrees C. If a small quantity of the ozonides are mixed with unvulcanized rubber and subjected to heat in the usual manner in a vulcanizing press, vulcanization is satisfactorily accomplished. According to the quantity of the ozonides added to the natural rubber, either soft or hard rubber may be produced.

The process is applicable not only to natural rubber, but may be applied to various synthetic rubbers. For example, tests carried out with dimethylethyrene and normal erythrene produced good results.

A British patent, based on Ostromislenski's researches, has been granted in which vulcanization without the use of sulphur is accomplished by still other groups of agents and accelerators.

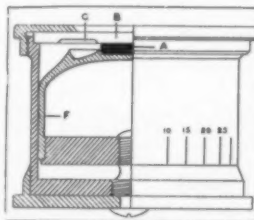
Quoting from the specifications, the invention is applicable to natural or synthetic rubbers from isoprene, erythrene, and dimethylethyrene. In an example, 50 grams of rubber are mixed with two grams of 1-3-5 trinitro-benzene, one gram of naphthylamine, and ten grams of lead oxide, and the mixture is vulcanized by heating for 55 minutes under a steam pressure of 45 pounds per square inch. The following examples of suitable vulcanizing agents are specified:

Mono, di, and tri nitrobenzols and toluols, tri and tetra nitro-naphthalenes, picric and picramic acids, picryl chloride, artificial musk, nitrocyclohexane, aurotin, and many other nitro dye-stuffs. Aniline, naphthylamine, pyridine, piperidine and di-isomylamine are used as accelerators in the presence of metallic oxides; they also prevent aging. Amines may be replaced by traces (0.05 per cent.) of sulphur, antimony, or substances having an alkaline reaction—for example, sodium alcoholate. Oxides of lead, zinc, calcium, magnesium, and barium also act as accelerators. The nitro-compounds and other substances may be employed under all the conditions under which sulphur is employed for vulcanization. (The patents referred to above will be found mentioned in this issue under "Chemical Patents.")

METHOD FOR MEASURING PERCENTAGE OF CAOUTCHOUC IN LATEX.

A method and instrument for the determination of the percentage of caoutchouc in latex has been devised by Van Iterson. It is given below in outline from "Part I, Communications of the International Association for Rubber Cultivation in the Netherlands Indies":

A rapid method for above purpose is of the greatest importance on the plantation. Three methods have been proposed, (1) by means of densimeters; (2) by trial coagulations; (3) by determination of total solids, and deduction of a constant percentage for non-rubber compounds. Each of these methods has its disadvantages. Van Iterson has devised an apparatus, by means of which the caoutchouc content is estimated by comparing the opacity of a given sample of latex with that of a standard sample with which the instrument has



been calibrated. The determination is carried out by adjusting the thickness of a central, circular film of latex, confined between an upper glass plate, *b*, and a lower ebony disc, *a*, until its color matches that of an encircling annular surface, *c*, of a standard color oil-paint applied to the under side of the observation glass. The adjustment is effected by moving the brass cylinder, *f*, up or down by means of the screw. The instrument is graduated to read direct in percentages of caoutchouc. With high concentrations, the error may reach a few per cent, but with average and low concentrations the results are very satisfactory.

NEW PLASTIC MATERIAL.

A French invention for a new plastic material, non-inflammable and odorless, is described by "The India Rubber Journal."

Gelatine or glue is melted in a water bath at 90 degrees C. An extract of hop flowers is mixed with dilute oxalic or any dibasic acid of that series and the solution is added to the melted gelatine or glue in varying proportions, according to the quality of the materials employed. The addition of this solution renders the gelatine more supple and causes the impurities

contained to precipitate. When liquefied the gelatine is poured in the form of sheets or sticks of the desired thickness and allowed to dry in cold air.

The material may be colored with natural or artificial dyes. When colored, the sheets are immersed in a bath made up as follows: 25 to 35 per cent formaldehyde, 25 to 35 per cent water, 25 to 35 per cent alcohol, and the rest a mixture of oxalic acid, tannin and glycerine. The plates should remain in this solution until the plastic is completely penetrated by the liquid. In case of rich gelatine, the proportion of alcohol must be increased. When removed from the bath the sheets are preferably dried in hot air. The product is said to be suitable for the manufacture of combs, buttons, brushes and similar toilet articles in imitation of tortoise shell, horn or ivory.

SYNTHETIC RUBBER FROM CARBIDE.

The manufacture of acetone with a view to the production of synthetic rubber is of considerable importance in Germany. According to the "Chemical Trade Journal," some of the largest firms in Germany have been occupied with this problem for many years. Some of these concerns are producing ten to fifty tons of carbide per day in order to convert the acetylene into acetic acid and acetone, the latter being intended chiefly for the production of synthetic rubber.

CHEMICAL PATENTS.

THE UNITED STATES.

VULCANIZATION OF RUBBER. A process for submitting the substance in the presence of sulphur, sulphides or other vulcanizing agents to the action of ultra-violet rays in an atmosphere of neutral gas not containing oxygen. [Gustave Bernstein, Royat, France. United States patent No. 1,240,116.]

INSULATING COMPOUND AND THE METHOD OF FORMING THE SAME. A metallic resinate and castor oil are heated together at a temperature of 250-310 degrees C. The mixture thus formed, after application to the article to be coated, is subjected to a temperature sufficient to destructively distill the castor oil and form a hard, elastic, enamel-like substance. [Jonathan W. Harris, Montclair, New Jersey, assignor to Western Electric Company of New York. United States patent No. 1,240,567.]

GUM. The coagulated gummy residuum of the cow tree latex containing its original starch in the form of sugar. The material is designed for chewing gum. [William B. Pratt, Wellesley, Massachusetts. United States patent No. 1,240,875.]

TREATMENT OF RUBBER. Vulcanization is effected by dipping a form in rubber cement, then curing the rubber on the form by sulphur chloride fumes, then subjecting the rubber to a steam cure and removing it from the form. [Conrade Hofer, Trenton, New Jersey, United States patent No. 1,242,189.]

PROCESS OF TREATING VULCANIZED RUBBER. Rubber waste is treated in a closed digester with refined rosin spirit, under pressure at a temperature below that detrimental to the rubber product. After solution of the vulcanized rubber the solvent is evaporated by steam for the recovery of the rubber. [Frank V. O'Neill, Boston, assignor to Henry Carmichael, Malden, and Wanda W. MacKusick, Boston, all in Massachusetts. United States patent No. 1,243,623.]

PROCESS FOR VULCANIZING RUBBER AND THE PRODUCTS OBTAINED THEREBY. Rubber or similar material is treated to form halide or chlorine compounds of rubber, adapted to produce vulcanization. Either of these compounds are added to unvulcanized rubber, and vulcanization induced by heating. The products of the action of these vulcanizing agents consist of a halide compound of rubber or a compound of rubber containing chlorine. [Ivan Ostromislenski, Petrograd, Russia, assignor to New York Belting & Packing Co., New York, United States patent No. 1,242,586.]

VULCANIZATION BY AGENTS OTHER THAN SULPHUR. A

method of making rubber compounds by mixing high-grade stiff rubber with a relatively small amount of aniline oil and petrolatum in such proportions as to impart to the compound after vulcanization, softness, a high degree of elasticity and smoothness, and submitting the mixture to the action of steam at a temperature to permit thorough penetration of the petrolatum to produce a homogeneous material. [Edwin E. A. G. Meyer, assignor to Morgan & Wright, both of Detroit, Michigan. United States patent No. 1,242,886.]

CANADA.

REPAIRING RUBBERWEAR. A process dispensing with patches and substituting the application first of a thin solution of masticated rubber dissolved in benzine, followed by a subsequent coating with a thick solution of the same, and finally vulcanizing the set solution by a wash of sulphur chloride and carbon bisulphide. [Silas Wilson, Parkside, South Australia, Australia. Canadian patent No. 177,601.]

RECOVERY OF RUBBER WASTE. The process of recovering rubber waste containing fibrous material, which comprises dividing the waste into small particles, disintegrating the fibrous material by adding sulphuric acid, neutralizing the acid by the addition of a base of alkaline earth in powdered form, working the resultant mixture into a homogeneous mass, evaporating to a point leaving about ten per cent moisture, and then adding a devulcanizing agent and a saponifiable oil. [The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of Charles R. Hayes, Naugatuck, Connecticut; John D. Morrow, Lakewood, Ohio, and Richard F. Kinsley, East Cleveland, Ohio. Canadian patent No. 177,612.]

THE UNITED KINGDOM.

LATEX COAGULATION APPARATUS. Latex is coagulated by treatment with sulphur dioxide in gaseous form or in solution, in a specially designed series of apparatus. [Linter & Co., 15 Raadhuisstraat, Amsterdam, Holland. British patent No. 108,298.]

VULCANIZING INDIA-RUBBER WITHOUT SULPHUR. Natural or synthetic rubber is vulcanized, preferably in the absence of sulphur, by treatment with (1) an organic medium containing or adapted to produce oxygen, (2) a fluid medium or a compound containing oxygen and nitrogen, (3) a vulcanizing agent containing oxygen, in the presence of lead or other metallic oxide or of a nitrogenous or other anti-aging material or of both a metallic oxide and an anti-aging material. Accelerating agents may also be added. [E. Hopkinson, 1790 Broadway, New York. British patent No. 108,300.] [I. Ostromislenski, 9 Liatin Pereoulk, Moscow, Russia.]

PLASTIC COMPOSITIONS. A composition of asbestos, asbestos and cotton, or other fiber, rubber, balata, gutta-percha, or like gum, shredded metal, and a filler, is sheeted and may be used as an engine or pipe joint packing. A soft metal or alloy must be used, such as lead or alloys of copper, tin or lead, and barytes or kieselguhr may be used as fillers. Example: 50-75 parts by weight of fiber are mixed with 10-30 parts each of rubber and metal, and 5-15 parts of filler. [Raybestos Co., Bridgeport, Connecticut, assignees of L. L. Ryan. British patent No. 108,455.]

THE SECOND EDITION OF THE CHEMICAL ENGINEERING CATALOG. 1917, published by the Chemical Catalog Co., 4 Madison avenue, New York City, has just been received and is much larger and more complete than the first issue. It contains conveniently arranged catalog information relating to chemical engineering equipment, machinery and raw materials used by the industry. There are 517 pages, including an alphabetical list of the firms cataloged and a comprehensive directory of equipment and materials. The catalog will be loaned for a year, without charge, to any chemical engineer, research chemist, industrial plant superintendent, works manager, buyer, firm or individual having use for such a reference book.

LABORATORY APPARATUS.

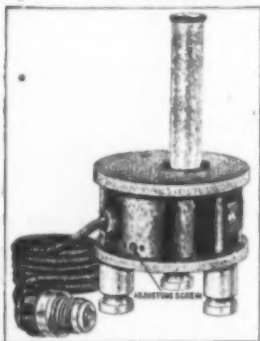
KIMLEY ELECTRO-ANALYSIS APPARATUS.

THIS compact piece of apparatus is composed of three circular castings mounted on an aluminum pipe, so as to permit the stand to be turned through nearly 180 degrees in either direction. The upper casting carries six resistance lamps. These should be about six volt with a capacity of about four amperes. In series with each lamp is a push button switch, also mounted on the upper casting.

The center circular casting carries the electrode holders, a push button switch to short circuit the electrode holders when not in use, and a pole-reversing switch to change the polarity of the electrodes to meet certain conditions of analysis. Each lamp on the upper casting is in parallel with the electrodes under it on the center casting, so as to take up the current carried by the solution under analysis when the solution is lowered so that the electrodes are out of contact with it. Otherwise an open circuit would be produced, which would spoil any other analysis on the stand at the same time. There is also mounted on the center support between the two upper castings a motor for revolving the electrodes. The lower casting serves only to carry the supports for the electrolytic beakers. [Eimer & Amend, 211 Third avenue, New York City.]

ELECTRIC HEATER.

Apparatus heated by electricity is being used in rubber laboratory practice on account of the convenience and cleanliness of this method. This device is designed for boiling and evaporating liquids. The illustration shows the test tube boiler. The instrument is furnished with an adjustable thermostat, whereby the temperature is automatically controlled, and holds liquids at a boiling point without boiling over. [Chicago Surgical & Electrical Co., 316 West Superior street, Chicago, Illinois.]



DOMESTIC CHEMICAL PORCELAIN.

Domestic chemical and scientific porcelain, made from materials obtained in Colorado, is being successfully made for every laboratory need to which porcelain is adapted. In addition to the usual forms such as beakers, crucibles, combustion boats, tubes, dishes, flasks, etc., any special design may be obtained. The quality is the highest standard in its resistance to heat, acids, alkalis and sudden changes of temperature. [Herold China & Pottery Co., Golden, Colorado.]

INSULATING MATERIAL FROM FISH OFFAL.

Corimite is a solid substance derived from fish offal through a process recently invented by a Danish chemist, and said to be particularly suitable for electric insulation. A company capitalized at 70,000 kroner, has been formed to work the process.

CHART FOR DETERMINING HORSE-POWER OF RUBBER BELTS.

By W. F. Schaphorst.

HERE is a handy chart for determining horse-power of rubber belts that will be found useful to manufacturers, salesmen and all users of this type of power transmission.

To use this chart, it is only necessary to zig-zag a straight edge across three times, as indicated by the dotted lines, and the horse-power is immediately found in column F.

As will be noted, the width of the belt is taken into account in column A, the revolutions per minute in column B, and the pulley diameter in column D, while the number of plies is shown in column G.

For example: If the width of the belt is 8 inches; the revolutions per minute of one of the pulleys on which the belt is used is 200; the pulley diameter 16 inches, and the number of plies is 4; what horse-power will be transmitted?

Run a line through figure 8 in column A and figure 200 in column B, locating the intersection with column C. From that

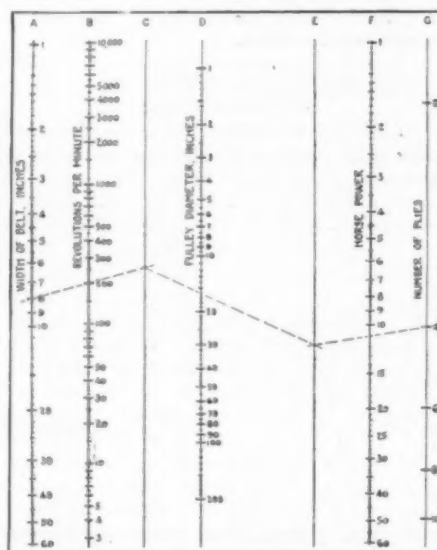


CHART FOR DETERMINING HORSE-POWER OF RUBBER BELTS

point of intersection, run through figure 16 in column D, and locate the intersection with column E. From that point, run over to figure 4 in column G. Then the intersection with column F indicates 11, which is the horse-power transmitted by the rubber belt.

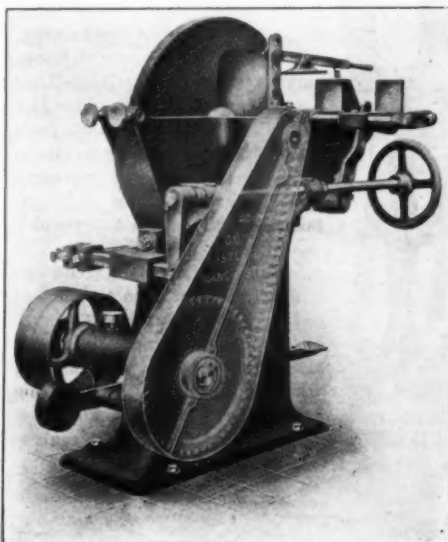
The chart may be used with equal ease for determining the belt width necessary for transmitting a given horse-power or the number of plies. In other words, if any one of the values is unknown, it can be easily found by merely zig-zagging a line across in one way or the other. A few moments' practice with the chart will make anyone familiar with belts, an expert in its use.

It must be remembered that this chart is not applicable to all rubber belt drives, but will take care of most of them. It should not be applied religiously, for example, to a special case where one of the pulleys is large and the other comparatively small, with the distance between centers short. Likewise, it obviously will not hold where the pulleys are too small, nor when speeds are excessively high. But where belt speeds are normal, the belt having plenty of contact, and where average conditions prevail, this chart may be safely applied.

New Machines and Appliances.

BRIDGE'S CRUDE RUBBER CUTTING MACHINE.

CRUDE rubber, other than plantation sheets, is cut up in the factory prior to the washing operation. Cutting machines are generally employed for this purpose, although the practice in many of the smaller factories is to use a large knife.



The machine here shown is an English type of block rubber cutting machine, possessing several features that will undoubtedly be of interest. It is mounted on a hollow pedestal, inclosing a trough of water in which the knife runs continuously when in operation.

The rubber block to be cut is placed on a sliding table and gripped by a hand lever that is adjustable to various thicknesses of the rubber block. The table is moved towards the knife by means of a treadle, and a stripper plate secured to the knife cover takes the pressure of the rubber from the side of the knife during the cutting operation. The machine is belt driven and is started and stopped by means of a hand wheel. [David Bridge & Co., Limited, Castleton, Manchester, England.]

A NEW HOLLINGS AND GUEST SHRINKING PRESS.

We are indebted to our English contemporary, "The Commercial Motor," for the following illustrated description of a new type of hydraulic press for shrinking the foundation bands of solid tires.



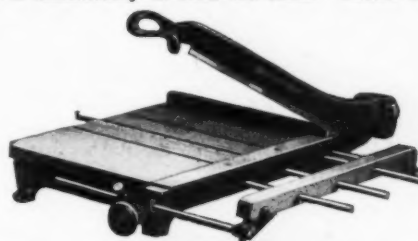
The working of this press will be obvious to our readers from the illustration included herewith. The body of the press is manufactured either as a steel casting, or it can be of cast iron. It is bored for the ten rams, and all the cylinders are lined with gun-metal. The rams themselves are steel forgings, and the projecting tools are of cast-iron machined to the largest size

required. Any number of sets of tools can be supplied for different size bands.

There is an arrangement fitted, which, however, cannot be seen in the illustration, whereby all the tools are forced out by hydraulic pressure to the same extent and returned to their normal positions in a like manner. This press is made in various sizes, the largest taking a band 6 feet in diameter and 15 inches wide, and may be worked by a standard hydraulic pump, or alternatively, by a standard type solid tire press. This latter point should make particular appeal to garage and repair-shop proprietors with whom a shrinking press of the kind described should find much favor. [Hollings & Guest, Limited, Thimble Lane, Birmingham, England.]

THE BOSTON STRIP CUTTER.

A hand-operated strip cutter is a very necessary appliance in the mill for cutting tubed and stripped stock for mold work. In the laboratory the pieces required for making tests are conveniently cut on this device. The construction is simple yet strong, comprising an iron frame with shafts and studs of steel. The table of hard wood is grooved in three places for inserting a movable side gage, convenient in cutting narrow strips. A scale graduated by inches is accurately set into the table. The knives are of tempered tool steel and made with a drawing cut, so that a clamp is unnecessary to hold the stock. Sheets of any size



may be readily cut, as the standard, holding the upper knife, has an off-set allowing the inside strip to pass over and the outside strip to pass under it.

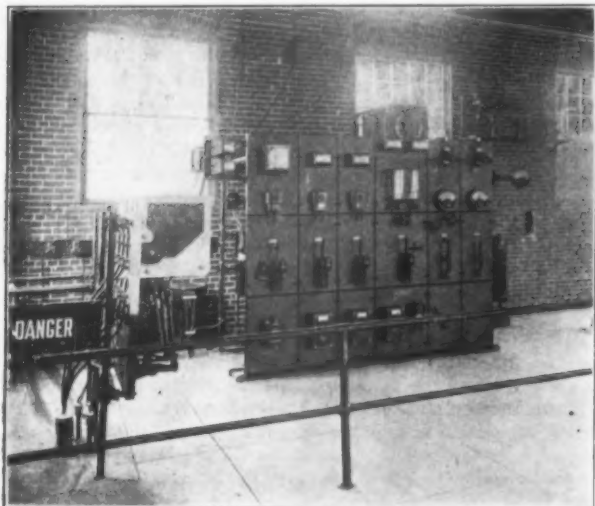
The back gage is a reversible steel rod with a stop at the end, which slides in a groove made in the table. This can be locked firmly, at any distance desired from the cutting edge, by a set screw. The front gage is a hard wood strip, in which adjustable pins are inserted for the sheets to rest upon, and is controlled at both ends by a rack and pinion movement that holds it parallel with the knife. [Golding Manufacturing Co., Franklin, Massachusetts.]

STANDARD ELECTRIC SWITCHBOARD PANELS.

There are many power station operators to-day who still remember the time when electrical power was in its infancy—the time when controlling devices were so inadequate that the "knife-switch" opened with a flaming arc in trail, an arc which was then beaten out with a leather thong. In those days it became evident to many that electricity must be better controlled if its best promises were to be fulfilled. Inventive genius was set to work to produce improved devices for the control of every sort of current, and in time the modern switchboard was evolved.

After the slate or marble panel, with its controlling and measuring instruments and its tripping devices for opening circuits at a sign of danger, was firmly established, a need for a uniformity in material, size and equipment became evident. As a result, switchboards have become standardized, and today it is possible for station owners and users of electrical power

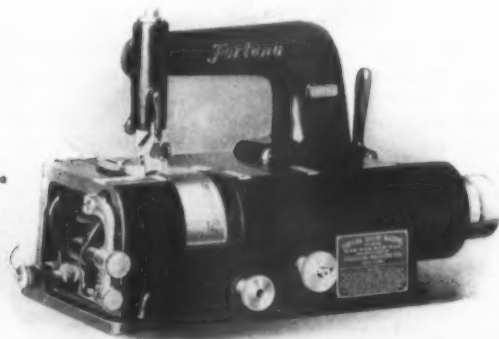
to order switchboards of a great many sizes and capacities directly from a catalog. Much of the worry, delay and expense of specifications and drawings has been eliminated, and in its place stand the advantage of quantity production and concentrated skill in design. Of course, various cases still exist



which require individual switchboard engineering, but a great many switchboard conditions may be met by the use of standard unit panels. [General Electric Co., Schenectady, New York.]

THE FORTUNA SKIVING MACHINE.

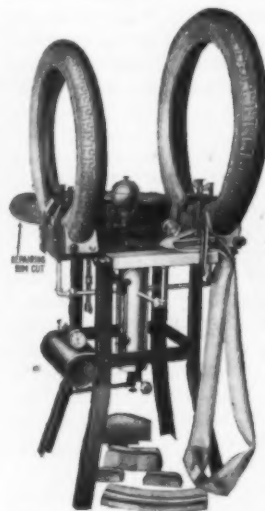
The machine shown in the accompanying illustration is designed to skive every known texture and has a wide use in the manufacture of leather and similar goods. Rubber manufacturers



should also be interested, as it is recommended for skiving tire treads, reliners, tubes, patches, soles and heels. The machine is built in four different models with skiving capacity from zero to 2 inches. A perfect bevel or a straight shoulder scarf may be produced on these machines. The stock is fed automatically, the operator merely holding the work to the guide. The knife is designed for long service and may be changed in five minutes. A grinding attachment is provided whereby the knife may be ground without interrupting the work. The ball bearings and gears run in grease so that the necessity of frequent oiling is reduced to a minimum. The type here shown requires $\frac{1}{4}$ H. P., and has a skiving capacity of $1\frac{1}{4}$ inches. [Fortuna Machine Co., 127 Duane street, New York City.]

THE ANDERSON STEAM REPAIR VULCANIZER.

A dependable repair on a tire shoe or inner tube requires experience and the best of materials, combined with the proper degree of heat and pressure supplied by a reliable steam vulcanizer.



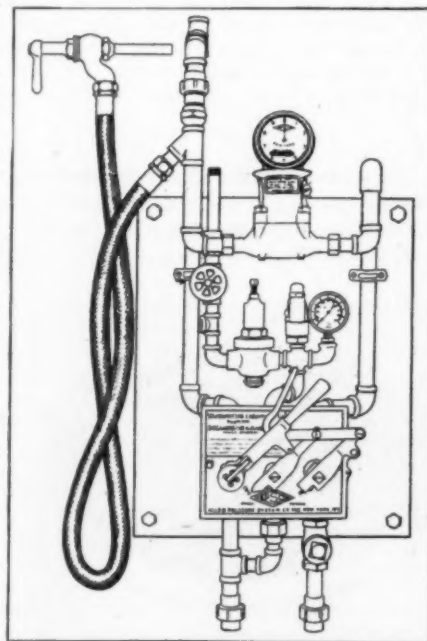
In fact, the greater burden in successfully repairing blowouts, punctures and rim cuts is placed on a machine that will deliver the correct heat and vulcanizing pressure.

One of the newest types using the sand bag system is here shown, and is built to deliver the maximum pressure necessary in effecting a perfect repair. The tire molds and tube plates that form the radiating system are so chambered that a uniform, predetermined degree of heat is maintained on all parts of the molds and plates at the same time. The machine is arranged to accommodate all sizes of auto tires up to and including 37 by 5 inches, thereby eliminating the necessity of various sized molds. Besides being equipped for effectively repairing

inner tubes, bicycle and motorcycle casings of all sizes, hot water bottles, boats, and raincoats may be repaired on this vulcanizer. [Anderson Steam Vulcanizer Co., Industrial Building, Indianapolis, Indiana.]

THE ALLEN GASOLINE STORAGE AND DISTRIBUTION SYSTEM.

The illustration here shown is the draw-off panel of a new gasoline storage and distributing system, and is used for transferring gasoline from the storage tanks to any receptacle. It is operated entirely by air-pressure, supplied from any outlet of an existing system, and all liquid passing through the system is accurately measured and recorded. There is no opportunity for the gasoline to vaporize or for gases to collect, thus preserving the strength of the liquid and preventing explosions.



To operate the panel, press on the finger valve and move the handle to the left, and the liquid will then flow through the meter and discharge outlet. To shut off the flow, return the handle to its original position—this permits the air to escape from the working tank and allows it immediately to refill with liquid.

The working tank is likewise vented, except when the panel is in operation. The storage tank may be filled while the system is in operation, and liquid may be drawn at any number of points at the same time.

Each draw-off panel is operated from an individual working tank, any number of which may be connected to one or more storage tanks. The operation of the system is not affected by the inactivity of the storage tank, provided one remains in service. [Allen Pressure System Co., Inc., 16-24 West Sixty-first street, New York City.]

THE AKIMOFF BALANCING APPARATUS.

It is a well-established law in mechanics that the lack of dynamic balance in a statically balanced body is due to a centrifugal couple acting in an axial plane. The only way to remove this effect is by introducing another centrifugal couple of the same magnitude but of opposite sign; in other words, by drilling two holes or adding two weights.

The importance of perfectly balanced armatures, crank shafts and calender rolls is fully appreciated by rubber mill engineers who will therefore be interested in the following description of a very simple device by which any lathe may be easily converted into a perfect, dynamic balancing machine.

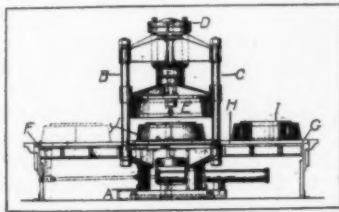
The apparatus consists of a clamp, very carefully made and calibrated, which is firmly secured to the outer end of the shaft of the body to be balanced, the other end being fastened in the lathe chuck. The end carrying the clamp rests on the rollers of a yielding support that is firmly secured to the shears of the lathe and provided with an ordinary dial gage.

The subsequent operation for determining the amount of metal and from what part of the body it is to be removed by drilling consists in reading the off-center displacement of the clamp, taking into consideration its distance from the chuck and then referring to a specially constructed table provided for this purpose. An average mechanic can learn the operation in about two hours. In two days he will become an expert. He has no calculations to make, but must follow the instructions and charts supplied with each device. A special laboratory is provided where practical demonstrations of these devices can be made in the interest of rubber mill practice. [N. W. Akimoff, 1013 Harrison Building, Philadelphia, Pennsylvania.]

MACHINERY PATENTS.

MOLDING AND SEMI-CURING NON-SKID TREAD BANDS.

NON-SKID tread bands, for pneumatic tire casings, are molded and semi-cured on the machine here illustrated in side elevation. The base *A* is provided with four brackets carrying four up-

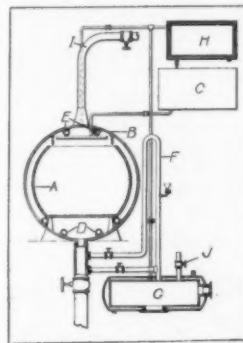


right standards, two of which, *B* and *C*, are shown. Mounted on these standards is crosshead *D* that supports a hydraulic cylinder in which operates a vertical ram to which is attached reciprocating press head *E*. Frames *F* and *G* extending from each side of the base are provided with rails on which slide platform *H*, that conveys the molds *I* and *J* through the press. The molds are identical, each comprising an annular matrix drum formed with non-skid designs, and a number of segmental mold parts forming the enclosing ring, the outer circumference being tapered to conform with the taper of the press head *E*.

In operation, the tread band is placed around the drum with the crown on the inside and the outer mold sections assembled, when the platform is moved forward by hydraulic means and the press head descends, forcing the mold parts together. Steam is then admitted to the chambers provided in the mold and press head, whereby the tread is semi-cured. In the meantime, the second mold has been prepared and when the press head is raised the platform is advanced until the mold is in position to be operated on by the press head. The operation therefore consists in alternately filling and emptying the molds as they are passed through the machine after being acted on by the press vulcanizer. [Edward Nall, assignor to the Goodyear Tire and Rubber Co., both of Akron, Ohio. United States patent No. 1,242,365.]

OCOTILLO GUM EXTRACTION APPARATUS.

The Ocotillo plant, *Fouquiera splendens*, contains a gum, constituting from 12 to 18 per cent of the whole plant, that may be used in the manufacture of chewing gum, hose and belting.

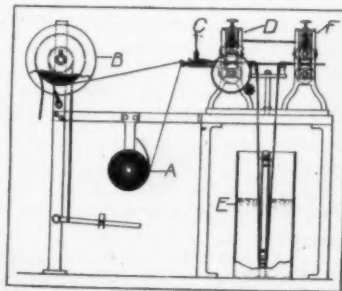


The gum is extracted by the apparatus here shown in vertical section, by the following process: The plant is comminuted and placed in the perforated container *A*, which is introduced into the digester *B*. When this is closed, solvent from tank *C* is sprayed on the material and heat is supplied by steam pipes *D*, meanwhile the gum in solution collects in the digester. The vapor is condensed by cooling pipes *E* and flows down the inner side of the digester. When the level of the solvent has risen sufficiently, the siphon *F* automatically delivers the solvent containing the gum to tank *G*, when it is separated by heat and the volatilized solvent passes into tank *H*, where it is condensed and returned to the supply tank for reuse. For further recovery of the solvent in the digester, all valves are closed excepting that in the vacuum line *I*. Through the combined action of the vacuum and heat the solvent remaining in the digester is recovered and returned to the supply tank. In a similar manner the solvent remaining in tank *G* is recovered by means of heat and the vacuum pump connections shown at *J*. [Edgar W. Snyder, Los Angeles, and Jefferson Crawford, San Francisco, both in California. Crawford assignor to Snyder. United States patent No. 1,240,894.]

MACHINE FOR MAKING ELASTIC LEATHER BODY BELTS.

This invention relates to the manufacture of live leather belts, providing apparatus for applying rubber cement to the leather, and a machine that forms it around the elastic webbing and crimps the leather covering while under tension.

The prepared leather covering is solutioned on one side and on the skived edge in a separate machine and wound up on a reel with a cloth liner. The reel is then transferred to the machine here illustrated in side elevation, the reel being shown in position at *A*, and the reel of elastic webbing at *B*. The leather web and the superposed elastic webbing are fed into



the machine together, where the device *C* folds the leather covering over the webbing so that the edges lap. The web then passes through grooved pressure rollers *D* and over guide rollers that direct its course downwards through the water tank *E*, where the leather is softened. It then passes up and through crimping rollers *F*, the elastic web being under tension from the time it leaves the reel. After leaving the crimping rollers the tension is relieved and the elastic web contracts, thereby shortening the crimped leather. The belting thus formed is cut into suitable lengths for making body belts. [Joseph Jacobs, assignor to The Live Leather Belt Co., both of New York City. United States patent No. 1,242,698.]

OTHER MACHINERY PATENTS.

THE UNITED STATES.

- 1,240,931. Form for rubber articles. C. E. Bradley, assignor to Mishawaka Woolen Manufacturing Co.—both of Mishawaka, Ind.
- 1,241,678. Adjusting means for paper wrapping machines. W. C. Stevens, Akron, Ohio, assignor to Pierce Wrapping Machine Co., Chicago, Ill.
- 1,241,913. Bead positioning device. J. F. Bradley, West Springfield, assignor to The Fisk Rubber Co., Chicopee Falls—both in Mass.
- 1,241,942. Collapsible core. W. Y. Duncan, Jr., Springfield, assignor to The Fisk Rubber Co., Chicopee Falls—both in Mass.
- 1,242,371. Shuttle lock for paper wrapping machines. F. M. Pierce, assignor to Pierce Wrapping Machine Co.—both of Chicago, Ill.
- 1,242,385. Reliner molding machine. W. L. Springer, Park Ridge, Ill.
- 1,242,561. Cementing machine. I. L. Keith, Haverhill, Mass.
- 1,242,776. Apparatus for forming hard rubber battery jars. S. Curtis, assignor to E. E. Curtis—both of Trenton, N. J.
- 1,242,874. Train pipe hose. J. S. Sheafe, New Brighton, N. Y., and V. Tobolla, Chicago, Ill.; said Tobolla assignor to said Sheafe.

ISSUED OCTOBER 16, 1917.

- 1,242,925. Cementing machine. J. W. Cosgrove, Medford, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.
- 1,243,076. Tire making machine. F. W. Kremer, Carlstadt, N. J.
- 1,243,142. Machine for the manufacture of tapes containing parallel electric wires. A. De Capitani, Milan, Italy.
- 1,243,357. Paper wrapping machine folder. W. C. Stevens, Akron, Ohio, assignor to Pierce Wrapping Machine Co., Chicago, Ill.

THE DOMINION OF CANADA.

- 177,420. Rubber hose vulcanizer. S. D. Hewitt, Buffalo, New York, U. S. A.
- 177,475. Tubing machine. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of R. B. Price, New York, and W. J. Steinele, Elmhurst Heights—both in New York, U. S. A.
- 177,608. Golf ball winding machine. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of W. E. Lake, New York, New York, U. S. A., assignee of M. M. Leith, Edinburgh, Scotland.
- 177,657. Dental Vulcanizer. T. T. Cater, Columbus, Kansas, U. S. A.

THE UNITED KINGDOM.

- 108,577. Feeding device for bias cutting machines. J. H. Nuttall, and D. Bridge & Co.—both of Castleton Ironworks, Castleton, Lancashire.

THE FRENCH REPUBLIC.

- 483,792 (December 12, 1916). Apparatus for the manufacture of automobile tires. J. E. Hauvette.

PROCESS PATENTS.

THE UNITED STATES.

- 1,240,438. Playing ball and method of making the same. R. T. Griffiths, assignor to The Miller Rubber Co.—both of Akron, Ohio.
- 1,240,439. Method of manufacturing playing balls. R. T. Griffiths, assignor to The Miller Rubber Co.—both of Akron, Ohio.
- 1,241,553. Method of repairing punctured pneumatic tire casings. W. M. Rand, Vancouver, British Columbia, Canada.
- 1,241,853. Method of manufacturing fabric. A. E. Jury, New York City, assignor to National Indian Rubber Co., Bristol, R. I.
- 1,242,073. Method of making tire casings. J. D. Tew, Akron, Ohio, assignor to The B. F. Goodrich Co., New York City.
- 1,242,270. Process of making tire casings. J. D. Tew, Akron, Ohio, assignor to The B. F. Goodrich Co., New York City.
- 1,242,491. Waterproof fabric. W. O. Stoddard, Jr., Madison, assignor of one-half to F. E. Kip, Montclair—both in New Jersey.
- 1,243,041. Covering material for aircraft and method of making said material. W. G. Clark, New York City.

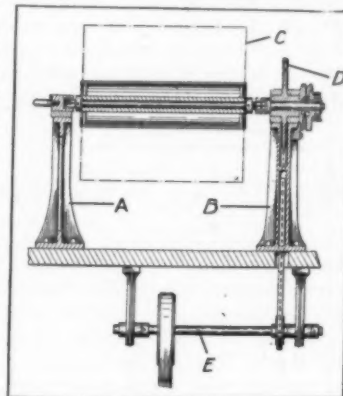
- 1,243,312. Process of hardening resins and products thereof. F. S. Low, Buffalo, N. Y.
- 1,243,372. Method of making storage battery separators. T. A. Willard, Cleveland, Ohio.

THE DOMINION OF CANADA.

- 177,609. Inner tube manufacture. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of W. G. Christopherson, Detroit, Michigan, U. S. A.
- 177,616. Manufacture of tire shoes. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of H. Z. Cobb, Winchester, Massachusetts, U. S. A.
- 108,453. Vulcanizing rubber. E. Hopkinson, 1790 Broadway, New York, New York, U. S. A.

METHOD OF AGING ROLLS OF FRICTIONED FABRIC.

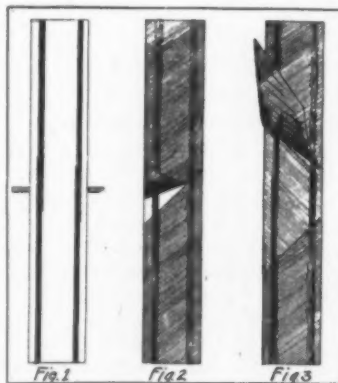
When freshly calendered stock is rolled up and left standing while cooling, the weight of the roll causes the fabric to sag and in many places adhere to the liner. This difficulty is obviated by the present method which consists in revolving the roll of fabric while it is cooling. The machine for accomplishing this purpose is here shown in longitudinal section and comprises two standards *A* and *B* between which the roll of frictioned fabric *C* is revolved, supported in suitable bearings. The roll is continuously rotated by chain gearing *D* from the main shaft *E* and the machine is preferably installed in a room where the fabric is subjected to atmospheric temperature. [Emil B. Cederstrom, assignor to Morgan & Wright, both of Detroit, Michigan. United States patent No. 1,237,471.]



MISCELLANEOUS PATENTS.

A FRENCH BICYCLE TIRE.

THE casing is made of two superposed strips of bias thread fabric, between which are placed two rows of parallel flax threads at equal distances from the edges for strengthening the base of the tire. This is built up on a collapsible drum, shown in Fig. 1, around which the flax threads are first wound to form the reinforcement bands. A strip of fabric is then placed over the bands and the ends joined in the manner shown in Fig. 2. The drum is then collapsed and the strip removed and turned, when it is replaced on the drum. A second fabric strip is then applied over the first, so that the threads of the former will be at right angles to those of the latter, as may be seen in Fig. 3. The ends are then joined and the strip removed from the drum, after which the edges are turned over and cemented. The strip is finally given tubular form on a mandrel by sewing or cementing the edges together, a suitable opening being left through which the inner tube is inserted. [P. Nivet and J. B. Haegg. French patent No. 483,285, December 30, 1915.]



New Goods and Specialties.

A HARD RUBBER BOTTLE FOR IODINE.

AMONG the many necessities furnished to our soldiers by the War Department is a hard rubber bottle for iodine—an antiseptic which is invaluable in first-aid treatment of cuts, etc., as it absolutely prevents infection when promptly used. The bottle is therefore an important addition to every fighter's outfit, being unbreakable and not affected by the action of the iodine. The design shown here has a screw top and holds about an ounce. [The American Hard Rubber Co., 11 Mercer street, New York City.]



NEW DESIGNS IN TOY BALLOONS.

Two seasonable novelties recently placed on the market are the "Apple" and "Pumpkin" balloons. The "Apple" balloon, as its name indicates, has the appearance of an apple when inflated, having a green wood stem. It comes in assorted colors and is decorated in natural color effects. Its

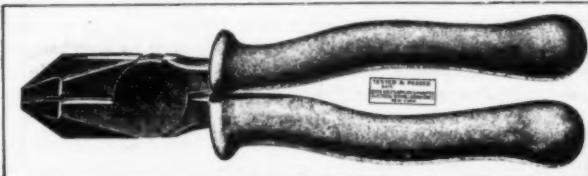


more expressive companion, which bears a close resemblance to the superior kind of pumpkin that smiles on Hallowe'en parties, is yellow in color, with a green rubber stem. Both balloons are equipped with a special design of self-closing valve. [The Faultless Rubber Co., Ashland, Ohio.]



"RIMCO" INSULATED PLIERS.

Insulated pliers are used by every lineman, who finds this useful tool an indispensable aid and a silent protector in his work. A tool that has been designed to take high insulation and withstand the rough usage of practical work is shown in the accompanying illustration. It is of an approved pattern, made of the



best tool steel and protected by an insulated compound that will stand a high voltage test. The method of attaching the compound is a patented process whereby a perfect bond is secured between the metal and rubber. Each pair of pliers bears the stamp of approval of the New York Electrical Testing Laboratories, having passed a 10,000-volt test. This plier is not only suitable for the work of linemen, but every motorist or truck driver would find it useful; moreover, those working around high voltage equipment where safety is the first consideration, can well afford to be thus protected. [Rubber Insulated Metals Corp., Plainfield, New Jersey.]

THE GARDINER NORINKLE METHOD OF MAKING TURN SHOE LININGS

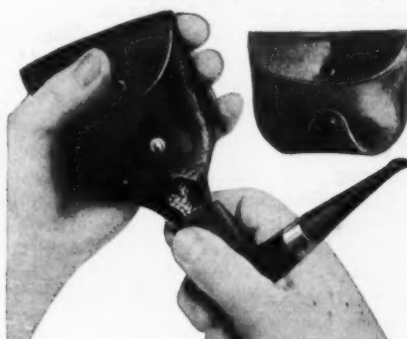
In shoe manufacturing, one method of attaching the soles is by sewing while the shoe is inside out, and turning it right side out after the sewing has been completed. Shoes thus manufactured are termed "turn shoes."

The lining in these shoes, being on the outside during the sewing, is, of course, larger than the outside and wrinkles when the shoe is turned.

To obviate this objection, a section of elastic webbing at slight tension is placed at the heel, and when the shoe is turned right side out this webbing takes up the surplus lining, thus preventing the wrinkles and folds and improving the appearance and comfort of the shoe. [Everlastik, Inc., 395 Broadway, New York City.]



A "PINCH POUCH" FOR THE PIPE DEVOTEE.

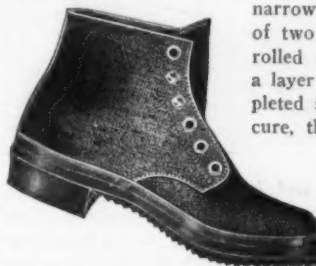


The unique feature of this rubber lined and moisture-proof tobacco pouch consists of a spout at the bottom through which the contents may be poured into the pipe, with no spilled tobacco to cause sadness in the smoker's

heart and dissension in his household. The spout serves as a trough when in use, being afterwards doubled up again and fastened with a "snapper" over the pouch opening. The pouch comes in two sizes and may be obtained in khaki or in different varieties of leather. It is equally serviceable, of course, for making cigarettes. [The L. A. W. Novelty Co., Springfield, Massachusetts.]

A WORKMAN'S SHOE.

A new shoe for workmen, having some improvements worthy of mention, has a heavy sole of exceptionally tough rubber, cemented to the upper in regular tennis fashion by means of a narrow foxing. The upper is made of two thicknesses of frictioned duck rolled together under pressure, with a layer of rubber between. The completed shoe is subjected to a pressure cure, thus blending the whole solidly together and making an upper which is more pliable than leather and a sole claimed to be as tough as an auto tire.

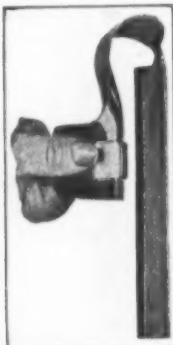


The shoe is made in several styles: the ordinary height Blucher pattern lace, which resembles in a general way a shoe for city wear; the plow shoe,

with a much heavier sole and large eyelets and lacing hooks, and the still higher cut boot, with nine eyelets and three lacing hooks and with bellows tongue, thus providing a shoe for work in quarries, mines and similar heavy service. [Miner Rubber Co., Limited, Montreal, Canada.]

"KLEAR-SIGHT" FOR WINDSHIELDS.

This windshield cleaner for use in stormy weather consists of a rubber strip, inserted in a steel frame which slips over the top of the windshield. The attachment is 7½ inches high and is worked by hand from the inside of the car, a single motion sweeping the rubber strip across the glass and cleansing it of rain, snow or dirt. The device may be used over or under the glass, as required. [The U-Auto-C Corp., 2156 Broadway, New York city.]



EUREKA RUBBER LATEX COAGULANT.

This preparation for coagulating the latex of *Hevea* rubber is said to produce not only the maximum amount of rubber in the shortest time, but to preserve it as well. By the use of this coagulant, pale crêpe may be produced with or without bisulphite of soda or other bleaching agents. It is a harmless fluid which is employed in the proportion of 1 to 1,200 of latex against acetic acid, 1 to 1,000. Eureka coagulant is supplied in two grades, Nos. 1 and 2, the latter being recommended for its preserving qualities. It is sold in 5-gallon stone bottles, packed in a case with sawdust. [The Eureka Rubber Coagulant Syndicate, 63 Finsbury Pavement, London, E. C., England.]

MAGIC RUBBER MEND.

This is a self curing mending material that should be useful in the house as well as in the tool box of every motorist. It is recommended for repairing rubber footwear, clothing, hot water bags and gloves. For repairing inner tubes, small punctures, cuts and blisters in tire casings, it is said to be particularly efficient. It is sold in cans and fully guaranteed by the maker. [Eastern Rubber Co., 1529 Ridge avenue, Philadelphia, Pennsylvania.]

A CALIPER FOR GAGING PNEUMATIC TIRES.

It is commonly asserted that 90 per cent of the motorist's tire trouble is due to either over-inflation or under-inflation, the rather troublesome but necessary tests being often neglected, to the detriment of the tires. To overcome this state of affairs, a



caliper has been recently invented, by which a motorist can in a few seconds determine if his tires are properly inflated. This caliper is double and is made of nickel-plated, flat steel, one set of arms being adjusted to fit the width of the tire at the top of the wheel, while the other set automatically fits the

width of the tire at the point where it rests on the ground. As the load-carrying part of the tire is slightly flattened, if it is properly inflated the width of the tire at this point bears a certain relation to the width of the normal tire. Acting on this principle, the caliper indicates if the tire is correctly inflated, and also whether the inflation is sufficient for the load applied—a heavy load naturally requiring a higher inflation than a light one. This is something that must be done by guesswork when an ordinary pressure gage is used. The caliper is simple, durable and automatic in its action, and fits nicely along the side of a tool box without taking appreciable space. (A. O. Running, Hawkins, Wisconsin.)

COAL GAS AUTO FUEL SUBSTITUTE FOR GASOLINE IN ENGLAND.

THE high cost of gasoline and the restriction of supplies by the English government have advanced the use of illuminating gas beyond the experimental stage as a motor fuel.

Motor busses and commercial trucks are being successfully operated on coal gas, with a cost equivalent to gasoline at 12 cents a gallon. The necessary equipment, which is comparatively cheap and easily installed, consists of a gas container made of double-texture fabric, attached to the top of the car and connected to



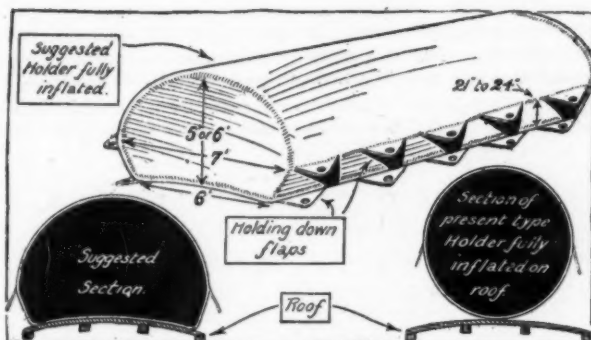
COAL GAS OPERATED BUS REPLENISHING FUEL.

the fuel intake. The only change necessary in the motor is the addition of a simple valve of the butterfly type for regulating the supply of air. The supply of fuel may be taken from any convenient gas supply—a gas jet, for that matter, will be sufficient.

From "The Commercial Motor" we learn that particular attention is being directed by British manufacturers to the construction and application of suitable containers. The present cylindrical form of holder, when fully inflated, sits up too high on the roof, thus increasing the risk of damage by overhanging trees, and sometimes rendering it impossible for a vehicle to pass under low railway bridges. The form of holder suggested is shown in the accompanying illustration, and it will be seen that the holder is always D-shaped, and therefore makes better use of the sectional form of the roof of the vehicle. A double set of tabs should be used on each side, with a space between of 21 to 24 inches separating the two rows.

A flexible container, to meet the requirements of everyday business, must be unshrinkable, waterproof, gastight and free from all tendency to laminate. The cotton fabric base, thoroughly shrunk before being coated, is passed through the spreader 12 times, receiving a coating of rubber during each passage. The envelope is composed of two such layers of material laid face to face, thus bringing a thickness of rubber between, which, by pressure, becomes forced into one thick homogeneous sheet.

The care and skill exercised in the preparation of the fabric influence the life of the container. Under normal conditions, the bag should prove serviceable for at least 18 months. Small leakages through punctures may possibly develop earlier, but

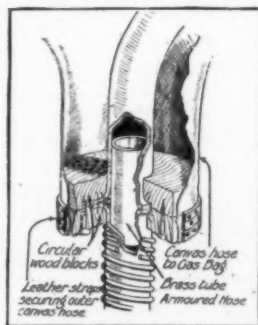


A NEW FORM OF GAS CONTAINER COMPARED WITH THE OLD TYPE.

these are insignificant mishaps and easily repairable by vulcanizing. The bag's most implacable enemy is friction arising from rolling under the influence of the wind.

Gas leakage is another trouble likely to be experienced unless due care is observed. As stated, the fabric consists of two layers having an interposed film of rubber. The gas speedily works its way through the inner layer, and unless checked will quickly penetrate the rubber and escape through the outer layer. To overcome this difficulty, the outer surfaces of the bags are treated with a dope of gold-size and boiled linseed oil in the proportion of two wine glasses of gold-size to one pint of linseed oil. Care must be observed to avoid the use of too much gold-size, otherwise the holder will be rendered brittle and liable to crack. Seams made with rubber solution must first be dressed with the gold-size alone before the mixture of gold-size and oil is allowed to touch them, as the oil will kill the rubber solution. The high-searching action of the gas is readily observable from the exterior. A criss-crossing of veins somewhat similar to creases and caused by folding may be observed. This is where the gas has forced its way through the inner layer of fabric and is distending the outer layer.

The gas in passing from the container to the motor should have an ample, unimpeded flow. The wind, even that created by the car itself, tends to drive the gas to the rear of the bag



OUTLET DEVICE TO INSURE UNIFORM GAS FLOW.

and to throttle the outlet by flapping the flabby fabric over the outlet, the effect of which is evidenced by back-firing. To eliminate this difficulty and insure a steady, uniform flow of gas, the connection shown in the accompanying illustration has been devised. The flexible trunk of the gas holder is cut off about 10 inches below its junction with the bag. In this opening are forced two circular wooden plugs, both of which are centrally bored to receive the ends of 1 1/4 inch india rubber hose. Both plug and hose should be tight fits. The hose hole in the upper face of the lower section of the plug is countersunk. The end of the hose is splayed and tacked down into this countersinking to prevent the hose from becoming detached. Within the hose is inserted a short section of brass tubing, from 6 to 8 inches in length. This, also being a tight fit,

tends to keep the section of hose in position. The hole in the upper block is also similarly countersunk upon its under face to receive another section of hose which extends upwards into the gasbag for a distance of about 18 inches. The plug end of this hose is likewise splayed and tacked down, while the upper end of the brass tube is also inserted in this section. The blocks are then brought face to face and screwed together as shown in the illustration.

The mouth of the flexible trunk is securely attached to the plug by leather straps passed around the block and over the fabric. By drawing the straps tightly and tacking them down, the fabric is not only held securely in position but a gas-tight joint is obtained.

The hose, extending 18 inches into the bag, is perforated along its length, while the inner end is open. Thus the gas is able to enter the feed pipe freely in the requisite volume. This device is one which can be quickly carried out with the aid of a few tools, and it effectively overcomes all possibility of the flapping bag throttling the inlet and starving the engine, while back firing is frustrated. The section of hose extending from the plug to the intake tube should be armored with wire.

The unqualified success in the use of coal gas propulsion for heavier vehicles has encouraged the application of the same principle to small cars. The result is shown in the above illustration.



FORD CAR OPERATED BY COAL GAS FUEL.

tration of a Ford car equipped for coal gas power. The gas container is 12 feet in length and 5 feet in diameter when fully inflated and has a capacity of 200 cubic feet. The contents of the container cost 12 cents at 60 cents per 1000 cubic feet and are sufficient to run the fully loaded car 17 miles on average roads.

It must not be assumed, because the use of coal-gas is such a ready-to-hand alternative in these days, that there are none of the usual small troubles that invariably attend the introduction of any new mechanical device, however sound it may be in principle. For instance, the driver of a coal-gas-driven limousine of heavy proportions has reported certain difficulties which he has not been able to surmount. He spoke particularly of less power from his engine when climbing hills. He had also found difficulty on every occasion in starting up. Both of these troubles, he claimed, were the experience of two other drivers whom he knew as running their vehicles on the new fuel. The gas in use was apparently not of unusually low calorific power, but was taken from the ordinary mains in certain south-coast towns. No improvement was noticeable by careful regulation of the gas stop cock, or by manipulation of the air intake; the supply pipe was of ample diameter.

That these minor difficulties will be effectually overcome is without doubt, for the use of coal gas possesses too many advantages to be easily discouraged.

The Editor's Book Table.

THE IMPERIAL COMBINATION CODE, RUBBER EDITION.
Compiled and published by E. B. Broomhall, London, E. C., England.
[Cloth, 9¼ x 12¼ inches, 269 pages. Price \$15.00.]

RUBBER importers, brokers and plantation shareholders will welcome this special edition of a well-known cable code in which the mining phrases of the general edition have been replaced by those particularly applicable to rubber. Various articles of produce cultivated with rubber have also been included, thus rendering it admirably suited to the transmission of company matters, reports, the buying and selling of produce, shares, etc., and in fact the only code suitable for rubber, tea and general plantation and rubber brokerage business. The code has been accepted for use under the censorship regulations; its working is simple and its use so economical as to pay for itself in a very short time.

REPORT OF THE JOINT RUBBER INSULATION COMMITTEE.
Reprinted from the Proceedings of the American Institute of Electrical Engineers, April, 1917. John Wiley & Sons, Inc., New York City. [8vo, cloth, 24 pages. Price, 25 cents.]

The publication of this report in book form makes available for handy reference a specification for high-grade rubber insulation which will enable purchasers to secure good material on the basis of competitive bids, and also a procedure for the chemical analysis of rubber compounds. A lengthy abstract of this report was published in THE INDIA RUBBER WORLD of November 1, 1916.

REPORT OF THE CEYLON DEPARTMENT OF AGRICULTURE, 1916.
[Paper cover, 22 pages, 8¼ x 13 inches.]

This report records the laboratory and field investigations of the scientific staff of the Ceylon Department of Agriculture, and contains much valuable information relating to tropical agricultural interests, notably rubber and other important plantation products. Prominent among the sections of interest to the rubber planter are: the summary of rubber cultivation and manurial experiments by the director; the statement of the mycologist on *Hevea* diseases and pests; the analysis of the rubber tree by the agricultural chemist; the investigations of the rubber research chemist regarding bark renewal, rubber preparation, latex vessels and composition of latex, and the outline of new experiments undertaken at the Peradeniya Experiment Station.

OVERZICHT OP HANDELS-EN FINANCIËEL GEBIED OVER
Rubber te Amsterdam, 1916. No. 4. Compiled and published by Wijnand & Keppeler, rubber brokers, Amsterdam. [Paper, 8vo, about 100 pages, chart. Price, 2.25 guilders.]

This useful little handbook gives information about some thirty-five rubber producing companies in the Dutch East Indies, as to the year of foundation and the amounts at which they are capitalized. The market during 1916 enters in brief review, and a list is given of new companies formed and old ones modified during 1916-17. Besides this, there are facts concerning the locality, area and number of estates; the number of trees on plantations; the cost of production and the sale price per kilogram of rubber; and, in conclusion, tables showing profit and loss accounts, dividends and share markets.

BULLETIN NO. 15. SYMPOSIUM ON POTASH RECOVERY.
American Institute of Chemical Engineers, New York City. [Octavo, 122 pages, paper.]

This pamphlet, which is one of a series, gives an account of the proceedings of the semi-annual meeting of this society held last June at Buffalo, New York, and a report of the symposium on potash recovery. The proceedings are given in full, including the addresses at the subscription dinner. The symposium report is particularly interesting, showing how our chemists are succeeding in securing potash from natural sources in this

country, an industry which has been of great value now that foreign sources of supply are unavailable. There is much in the pamphlet which will interest chemists in the rubber industry.

THE TIRE RATE BOOK, SEPTEMBER, 1917. THE CLASS JOURNAL Co., New York City. 1252 pages, board covers; small, 8vo.]

The September issue of this publication shows the thoroughness and care in preparation which characterized the previous issues. It gives 127 tire price-lists, a very comprehensive list of tire sizes and rim styles, with makers' names, telegraph and cable code and other valuable data of interest to the tire industry.

HANDBOOK OF CONVEYOR PRACTICE. ROBINS CONVEYING Belt Co., New York City. [8vo, 96 pages, board covers.]

Intended as a handbook to aid engineers who may have presented to them problems of conveying materials, goods, or packages, this book gives a large amount of technical information regarding various types of conveying machinery, including a detailed and illustrated description of the manufacture, installation, care and use of rubber and duck conveyor belts. Directions for testing, charts giving capacity, speed, horsepower needs and other facts are numerous and graphic. Many excellent half-tone illustrations show various installations of the company's specialties.

NEW TRADE PUBLICATIONS.

THERE has just been issued a handy little booklet which contains a list of all the products manufactured by the E. I. du Pont de Nemours and associated companies, namely, the du Pont Chemical Works, the du Pont Fabrikoid Co., the Arlington Co. and Harrisons, Inc. The latter are makers of Becton white and rubber makers' white, two products well and favorably known to the rubber trade. This booklet will no doubt prove of interest as well as of value to many rubber men and will be sent upon application to the home office at Wilmington, Delaware.

* * *

In view of the great interest taken by rubber manufacturers in cotton, and stirred by THE INDIA RUBBER WORLD's articles on American planting in Arizona, David Bridge & Co., Limited, Castleton, Manchester, England, send for review a handsome 40-page, illustrated catalog of the Cummins new patent horizontal cotton baling presses for high density end-pressed bales. These presses, made in three sizes, long, intermediate and short, are suitable for baling fibrous material of any sort, and in price, cost of operation, rapidity, automatic movements, simple requirements of location, etc., invite comparison with the best vertical presses. A copy may be had on request.

* * *

The Indiana Rubber & Insulated Wire Co., Jonesboro, Indiana, is sending out a self-binding cover and loose-leaf bulletin price-list and catalog. By sending a new leaf when any change in description or price is made, the catalog is kept up to date in compact and convenient form.

* * *

An unusually striking folder dealing with "Cannonball" Baker's new records on the Cincinnati speedway, and particularly with the part played by United States tires, is being distributed by the United States Tire Co., New York City.

* * *

The Thermoid Rubber Co., Trenton, New Jersey, is sending out a unique piece of publicity, a 24-page pamphlet, 10x13 inches. This is to advertise the Thermoid brake lining, and to describe minutely by text and illustrations its manufacture and

merits. Specimens of the advertising now being done by the company are also shown. The cover is of brilliant orange color with a striking phrase in black, "50,000,000 Lives Depend on Good Brakes."

* * *

The address on "Some Unique Features of Electric Elevator Control," by Harrison P. Reed, engineer with the Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, at the fourth national convention of the Elevator Manufacturers' Association of the United States, held in that city last month, has been published in pamphlet form with a number of tables of value to elevator manufacturers and users.

* * *

The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, has issued an attractive style bulletin of its Fleet-Foot tennis shoes, picturing 20 or more styles, many of them novel in design, and all on up-to-date lasts, similar to the newest of leather shoes.

* * *

The Link-Belt Co., Chicago, Illinois, has recently sent out the following publications: A comprehensive, well illustrated 44 page booklet devoted to electric hoists; another handsome booklet which illustrates and describes coal tipples, built for the Powhatan Coal & Coke Co., Powhatan, West Virginia; and two folders, one describing the Sand and Gravel Washery of the Raritan Ridge Clay Co., Metuchen, New Jersey, and the other describing the Watson Type Tramway and Tower System. All four publications are of the usual Link-Belt excellence in printing and illustration.

* * *

The "Rubber Footwear" and "Lifebuoy Outing Shoe" catalogs of the Kaufman Rubber Co., Limited, Kitchener, Canada, are excellent specimens of compact and convenient trade catalogs, showing in attractive half-tones the many lines of footwear manufactured by that company, together with miscellaneous information as to assortments of packings, shapes, lasts and styles.

* * *

The National Board of Fire Underwriters, 76 William street, New York City, has published an illustrated card for hanging upon the walls in factories, giving seven terse cautionary rules tending to prevent fire. The card is one which might well adorn every room in every factory. We understand that the publishers will send these cards on request to the members of the National Fire Protective Association.

* * *

We are in receipt of an attractive catalog of the well-known Canadian Dunlop automobile tires, tubes and accessories. The book is particularly well illustrated and shows to advantage the traction tread, special, grooved and plain tires, in the new bluish-gray color, which is taking so well with the motoring public in general. It is patent at first glance that a perusal of this catalog will be interesting to all motorists. Much useful general tire information is also incorporated.

* * *

In response to the large number of inquiries from customers, L. Littlejohn & Co., Inc., crude rubber brokers, New York City, have published in the form of a 134-page pamphlet a copy of the proceedings in the Pontianak or Jelutong case before the Board of United States General Appraisers, which case was reported in THE INDIA RUBBER WORLD of September 1, 1917.

* * *

From the Gustin-Baron Manufacturing Co., Kansas City, Missouri, we have received "General Catalog No. 5" of mechanical rubber goods, railway and mill supplies, a handsome cloth-bound volume of 213 pages, 6x9 inches, profusely illustrated in two colors on heavy coated paper. Belting for power transmission and conveyors, hose and tubing of many sorts, packing for all purposes, gaskets and mats are the principal lines, including a wealth of accessories and many miscellaneous articles.

THE NEW YORK ELECTRICAL EXPOSITION OF 1917.

THE steady progress that is being made in the adaptation of electricity to world-wide uses was forcibly brought to the attention of the visitors who attended the Electrical Exposition held at the Grand Central Palace from October 10-20. This event not only marks the decennial of the exposition in New York, but also the thirty-fifth anniversary of the beginning of commercial electric service in this city. A bronze memorial tablet has been placed on the building which occupies the site of the original generating station at 257 Pearl street.

The exhibits of those prominent in the manufacture of electrical supplies and appliances were of particular interest, due to the comprehensive manner in which the various products were displayed.

The three sections of the General Electric Co.'s installation were occupied respectively by the Fort Wayne department, the research laboratory and the Edison Lamp Works of the General Electric Co. In the first section there was an interesting arrangement of fractional horse-power motors and small motor generator sets manufactured by the Fort Wayne department. A motor generator set with control panel as used for charging electric vehicles in private garages, and standard charging panels for public garage works were exhibited. One of the interesting features was a small motor generator set which was in operation charging ignition, lighting and starting batteries. The exhibit of the Edison Lamp Works of the General Electric Co. was designed with the idea of showing types and sizes of Edison Mazda lamps for every purpose, with a display of some of the most interesting modern applications of these lamps. The principal display contained lamps for practically every conceivable lighting service—from the tiny flashlight lamp to the 1,000-watt Mazda "C" lamp.

An attractive exhibit, appealing particularly to those interested in the equipment of the home, was that of the Westinghouse Electric & Manufacturing Co. An unusually complete line of heating devices, including toaster stoves, coffee percolators, chafing dishes, hot plates, curling irons, tire vulcanizers, sterilizers, solder pots, glue pots and warming pads was shown. Possibly the most interesting feature of the exhibit was the automatic electric range, the food to be cooked being placed in the range and the clock set at the time desired to serve the meal, from that on the cooking process being automatic. Another time-saving device was the Westinghouse Sew-Motor, a very simple and compact little motor, easily attached and operated, while the amount of current it uses is negligible.

The Electric Cable Co. and the Habirshaw Electric Cable Co., Inc., displayed their high-speed wire braiding machine in operation. Conforming with the patriotic spirit of the day, the wire was braided with red, white and blue cotton. The evolution of rubber-covered wire from the crude rubber and the copper ore to the finished product was also shown.

The exhibits that illustrated the war-time activities of the United States were prominent features of the show and of great educational value.

The application of electricity to the prosecution of the war was illustrated by the Army and Navy exhibits, while the American Red Cross display showed the application of electricity to the work of overcoming war's destruction. The workshop was in operation all day and surgical dressings, bandages and other supplies were being made for shipment to Europe. This exhibit and that of the first aid station, where Red Cross nurses made practical demonstrations, were the means of enlisting the cooperation of thousands who had heretofore failed to realize the seriousness of this war.

THE OBITUARY RECORD.

WIDOW OF A WELL-KNOWN RUBBER MAN.

MRS. MARIE ANTOINETTE EVANS, widely known for her many benefactions, died at her home in Boston, Massachusetts, October 16, aged 72 years.

She was the daughter of the late David Hunt, who in the '70s was a partner with the late Elisha S. Converse in the firm of Converse & Hunt, organized as Boston selling agents for all the rubber footwear factories. He was afterwards selling agent for the Meyer Rubber Co. and the New Jersey Rubber Shoe Co.

Miss Hunt was married in September, 1867, to Robert Dawson Evans, at that time in the employ of Charles M. Clapp, with whom, in 1870, he formed the partnership of Clapp, Evans & Co. Mr. Evans organized the American Rubber Co., which became, through his management, a leader in the rubber footwear and mackintosh trade; and when that concern was merged in the United States Rubber Co., Mr. Evans was chosen president of the latter concern, at that time the largest industrial corporation in America. Later he retired from the rubber manufacturing industry, though continuing his interest in the production of crude rubber in South America and Mexico. He then devoted his energies to copper and gold mining. At his death, in 1909, he left his entire estate, estimated at \$12,000,000, to his widow.

Mr. Evans was a very charitable man, though his philanthropies were unostentatious, and many of them confidential. Mrs. Evans was a worthy helpmate of her husband in the distribution of his wealth, and they together formulated plans which were not perfected when Mr. Evans met his death by accident. She, however, carried those plans to realization, and the Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine was built in Boston, at a cost of \$500,000. Another and greater monument to this couple is the great annex to the Boston Museum of Fine Arts, which was described and pictured in THE INDIA RUBBER WORLD, March 1, 1915. The Boston Conservatory of Music and the South Congregational Church of Boston were also special objects of her beneficence.

She left an estate estimated at considerably more than \$5,000,000, made a large number of bequests to educational and benevolent institutions and societies, while the two Evans memorials mentioned above are named as residuary legatees.

INVENTOR OF SURGICAL INSTRUMENTS.

Allen De Vilbiss, M. D., president of the De Vilbiss Manufacturing Co., Toledo, Ohio, died of apoplexy at his home in that city, October 1. He was born in St. Albans township, Ohio, December 5, 1841. He received his degree as Doctor of Medicine as a member of the class of 1868, of Miami Medical College, Cincinnati, and also attended the University of Michigan, at Ann Arbor. Dr. De Vilbiss invented or perfected a number of instruments for surgical use, and was at the head of the company bearing his name, which manufactured these and a line of drug and surgical sundries. He was a member of several medical associations.

SCIENTIST AND EDITOR.

Dr. Eugene F. Roeber, editor of "Metallurgical and Chemical Engineering," and one of the founders of the American Electro-Chemical Society, died at his home at East Orange, New Jersey, October 18. He was born in Torgau, Germany, October, 1867, and was educated at Jena, Halle and Berlin, receiving his Ph.D. degree in the latter university in 1892. After coming to America in 1894, he not only edited the above-named journal, but was an able contributor to other technical publications in the chemical and electrical field. He served as a member of the board of directors of the American Electro-Chemical Society from 1902 to 1913 and was its president in 1913 and 1914. Dr. Roeber was a member of the American Institute of Mining Engineers, the American Chemical Society, the American Institute of Chemical Engineering, the Society of Chemical Industry and

the Chemists' Club of New York City. He is survived by a widow and three sons.

A CAPABLE MANAGER.

John Beakley, manager of the Firestone Tire & Rubber Co.'s Texas business, died less than two months ago from a minor operation that caused complications resulting in his death. He had been with the Firestone organization since 1915, when he was promoted to the credit department in Akron, and on January 1, 1916, he was made Texas manager.

BRANCH STORE MANAGER.

George E. Ranney, manager of the Columbus, Ohio, branch of the Firestone Tire & Rubber Co., Akron, Ohio, died at his home in Columbus, October 3, aged 35 years. He left a wife and two daughters.

INTERESTING LETTERS FROM OUR READERS.

THE JAPANESE MISSION AND CRUDE RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR.—Entertaining missions from foreign lands has become an every-day American pastime. But the enthusiastically cordial reception accorded the Japanese mission on the Pacific Coast holds a peculiar interest and significance to the rest of the country, indicating, as it does, that American entrance into world affairs, on a far broader scale than hitherto, has swept aside the smaller differences which at times have seemed to imperil our national relations with our Far Eastern neighbor.

With crude rubber and other imports to our Pacific ports greatly on the increase, it becomes a matter of considerable moment to rubber and other industries that Japan has pledged her loyalty to the principles for which the United States declared war and stands with us ready to do her part toward making this world the abiding place of liberty, justice and fair play. The plausible report that the *Deutschland* and possibly other super-submarines have been converted to war purposes against Pacific trade renders it important that Japan and America join hands in patrolling the Pacific sea lanes and enforcing respect for law and humanity there. Presumably a working arrangement of this sort will be one of the early accomplishments of the Japanese mission's visit to Washington.

While lending its support toward this desired end, the rubber industry may well contemplate what it already owes to the Japanese navy in immunity from German commerce destroyers. In cooperation with the British navy, it first exterminated the German naval forces in the Pacific and seized their base. Since early in 1916 a special detachment of Japanese cruisers and destroyers has patrolled the coast of the Straits Settlements and guarded the Indian ocean east of Colombo, while in the northern Pacific, detachments of Japanese cruisers have on several occasions made extensive cruises that were of importance to the allied cause. When Germany unleashed her submarines for indiscriminate destruction, a considerable force of Japanese light craft was dispatched to the Mediterranean, and more recently several new detachments of fast and powerful cruisers have aided British vessels in the protection of shipping in the Indian and South Pacific oceans. Were the Japanese navy to join the American navy in the event of the German high seas fleet eluding the British and making for American coasts, it is doubtful if Admiral Scheer or any of his ships would ever regain the Kiel canal.

And if Japan is a trusty comrade in war, why should she not be a faithful companion in peace? The Japanese have assimilated much of our western civilization with remarkable rapidity; American ideas and ideals are manifesting themselves in Japanese national life, and that great people is show-

ing a sincere desire to associate with other nations striving for world progress. Despite sinister foreign intrigue and the gossip of American alarmists, Japan has long been drawing nearer to America in thought. The war now urges America to draw nearer to Japan in appreciation, to our mutual benefit.

ONLOOKER.

San Francisco, August 20, 1917.

A BIT OF FRIENDLY SARCASM.

From a Letter Sent by a Dealer in Scrapped Auto Tires to an Exceedingly Critical Customer.

Dear ———:

Regarding your list of complaints, each of which was of a most serious nature, we beg to report as follows:

We confirm your request to ship only three tires on each load, thereby eradicating chances of error in weighing in.

In connection with the preceding, instead of hiring the ordinary plebeian laborer, we have succeeded in procuring sorters and laborers each one of which has unusually fine family connections and have distinguished themselves in the various spheres of mathematics, physics, chemistry, etc. Except for one boy used as a bus in the tea room of our plant, there is not a single gentleman in our employ who has not obtained his degree.

In reference to the G. & G. tire No. 863 on load No. 42, covered by invoice No. 694: As half of the letter G was missing we have made arrangements to replace the letter in full.

Regarding the serial number entered as No. 999,999, the number should have been 666,666. Our shipping clerk read it standing on his left ear. We have told him that hereafter he must stand on the "right" ear.

Regarding discrepancy of 2/100 oz. in load No. 29, we find that this was due to a mosquito standing on the tare beam of the scale. We have had mosquito netting put around the scale and feel confident there will not be a recurrence of this in the future.

Regarding the tire described as being lilac in color and which your factory reported was a pale orchid shade. We have found that our chief color expert had indulged a bit freely the night previously and was rather color blind in one eye the following morning. He has taken the pledge.

Regarding the tire on which there was a spot. We find that a sorter had for some unaccountable reason forgotten his white gloves, which caused the garlic stain above referred to.

As to stone bruises on several of the tires, we have taken this matter up and are making arrangements with Commissioner Woods and the other Police Commissioners in various cities, with every indication of success, that autoists be allowed to use the sidewalks instead of the rough and dirty streets; and we have no doubt but that the country autoists will be pleased to run over the fields instead of the roads. In other words, we are beginning a nation-wide campaign so that the tires reaching your factory will be just as sweet and clean as they were the day they were born. In this connection, we also have an idea that it would look very pretty if we should talcum the tires a bit, and also scent them with some delicate perfume.

Regarding a shipment due to arrive at your factory at 11.54½, but which did not get there until 11.5455—standard meridian—we find that the driver quite thoughtlessly got married on the way out. We have instructed him that your factory must not suffer owing to any indulgence in the frivolities of life. In fact, we have discharged all the single men so as to prevent a recurrence, because we assume that the married men (such as the intelligent ones we have) would not make the same mistake twice.

Anxiously yours,

JUDICIAL DECISIONS.

RUBBER TRADING CO. v. MANHATTAN RUBBER MANUFACTURING Co., Court of Appeals of New York, July 11, 1917.

Mention of this long-pending suit was made in the September issue of THE INDIA RUBBER WORLD, when it was stated that a new trial had been granted. At this trial, the court finally decided that the motion for reargument should be denied with \$10 costs and necessary printing disbursements. [Northeastern Reporter, Volume 116, page 1047.]

HEMMING MANUFACTURING CO. v. CUTLER-HAMMER MANUFACTURING Co., Circuit Court of Appeals, Seventh Circuit, April 10, 1917.

The Hemming Manufacturing Co., manufacturer of an electrical insulating material, alleged that the Cutler-Hammer people infringed on the Muller patent under which they operated. This patent claimed that if mineral pitch was dissolved in benzol at about normal temperature and asbestos be mixed in until it became a consistent plastic mass and then molded by means of great pressure in a cold state and the benzol allowed to evaporate, the resultant product would be a fireproof electrical insulator to be used in place of rubber or porcelain.

If the material was actually made under the conditions set forth in the patent, the material could be distorted by hand after exposure to the air for a year, and when it was placed over an alcohol lamp it gave off vapors in 5 seconds, ignited in 30 seconds and crumbled in 45, and so was useless as an electrical insulator.

They, however, did not make it as stated in the patent, but instead added to the benzol a quantity of anthracene oil. This product was known on the market as "Gummon." The Cutler-Hammer company used a formula similar to the "Gummon" process but in place of the anthracene oil they used china-wood oil.

The district court in which the case was first tried decided in favor of the Cutler-Hammer company and Hemming appealed. In the Court of Appeals it was found that the patent was void because of the inadequate disclosures made in it and it was also found that even if the validity of the patent was conceded there was no infringement. [Federal Reporter, Volume 243, page 595.]

A. G. SPALDING & BROTHERS v. A. W. GAMAGE, LIMITED. In the High Court of Justice, Chancery Division, November 22, 1916, to July 11, 1917.

A. G. Spalding & Brothers, American sporting goods outfitters, made through their English agent, the Spalding Manufacturing Co., a rubberized canvas football in 1910, called the "Moulded Orb." An improvement was made on this ball, which was called the "Sewn Orb" and the Spalding Manufacturing Co. obtained the permission of the American concern to sell the 5,000 molded cases it had in stock as scrap rubber. They thereupon sold them to Mellis, Schein & Co., scrap rubber dealers, who sold them to A. W. Gamage, a competing English concern.

In August, 1912, A. W. Gamage and Benetfink & Co. advertised the discarded ball as "Improved Orb" balls at greatly reduced prices. When the illegality of these advertisements was called to the attention of Gamage, Mr. Parker, their director, stopped the advertisements and issued orders to his employees not to sell the ball as the "Improved" but as the "Original Orb." They were enjoined from advertising the balls any longer as the "Improved," and in September they published another set of advertisements in which they omitted any reference to the improved ball but the wording was practically the same as in the former one. Judge Sargent, who first tried the case, claimed that the second set of advertisements were liable to create the idea that the improved ball was being sold at a price lower than that charged the retailers and thus cause a loss of sales by the Spalding people and considerable animosity toward

the Spaldings among the trade. Gamage took the case to the Court of Appeals, who reversed the judgment, and the case was again appealed and taken to the House of Lords, where the case was heard by the Official Referee, who affirmed the decision of the first court and awarded Spalding £7,000.

Gamage brought the case to the High Court of Justice, where it was brought out that, although the first ball had been extensively advertised, the second ball had not been announced to the public so that it would be extensively known, and therefore the damage that might be done to the sale of the ball by advertisements that covered but a short time could not be very great, and that the English sporting goods retailers were not very much in accord with them so that their reputation could not have been damaged very much. The Court cut the damages asked by the Spaldings from £18,859 to £100. [Illustrated Official Journal, Volume 34, page 289.]

CUSTOMS APPRAISERS' DECISIONS.

HARD RUBBER COMBS AND SYRINGES.—The merchandise is reported by the appraiser to be combs and syringes composed of hard rubber. They were classified as manufactures of hard rubber at 25 per cent ad valorem under paragraph 369, tariff act of 1913, and are claimed dutiable at various lower rates. The protest of Knauth, Nachod & Kuhne, importers, New York City, was overruled, and hard-rubber combs and syringes were held properly classified under paragraph 369. [Treasury Decisions, September 20, 1917.]

ANTIMONY SALTS.—Sulphide or sulphuret of antimony which the appraiser reports has been produced by decomposition of sodium thioantimoniate with diluted sulphuric acid, used as a vulcanizing agent in the manufacture of rubber, classified as a chemical salt at 25 per cent ad valorem under paragraph 144, tariff act of 1913, is claimed dutiable at 15 per cent under paragraph 5.

The protests of the General Rubber Co., and Lunham & Moore, New York City, were overruled. On the authority of *United States v. Innis* (7 Ct. Cust. Appls., 3; T. D. 36254) antimony salts were held dutiable at 15 per cent under paragraph 5. [Treasury Decisions, October 11, 1917.]

ELASTIC BRAIDS. Protest of Calhoun, Robbins & Co., Importers, New York City. The merchandise consisted of narrow braided fabrics, some flat and others oval, composed of cotton and india rubber and of silk and india rubber. The collector held the merchandise to be dutiable as braids at the rate of 60 per cent ad valorem under paragraph 358, tariff act of 1913, the pertinent provision of which reads as follows:

358. . . . Braids, loom woven and ornamented in the process of weaving, or made by hand, or on any braid machine, knitting machine, or lace machine, and not specially provided for; . . . all of the foregoing of whatever yarns, threads, or filaments composed, 60 per centum ad valorem.

The importers claimed that the articles were properly dutiable at 25 per cent ad valorem under paragraph 262 of the tariff act of 1913.

It was decided, however, that the goods in question were properly dutiable as assessed, and the protests were accordingly overruled. [Treasury Decisions, October 4, 1917.]

MITCHEL TORCH LIGHT PARADE.

A call has been sent out to the New York rubber trade by Robert C. Fisher, marshal of the rubber trade division, to participate in a torch light demonstration to be held Thursday night, November 1, in favor of the reelection of Mayor Mitchell. The executive committee is composed of the following rubber men: Robert C. Fisher, Henry Hubbard, Amédée Spadone, W. E. Bruyn, Charles T. Wilson, W. G. Ryckman, H. S. Vorhis.

GOVERNMENT PROPOSALS FOR RUBBER SUPPLIES.

RUBBER SURGICAL GOODS No. 4825.—Field Medical Supply Depot, United States Army, 21 M street Northeast, Washington, D. C. Sealed quotations are wanted not later than November 9, 1917, for furnishing 17,000 rubber aprons, 10,000 hot water and syringe rubber bags, 15,000 rubber bandages, 13,000 rubber basins, 100,000 rubber blankets, 100,000 hard rubber bottles, 12,000 flexible bougies, 24,000 flexible catheters, 7,000 inkwells, 600 pill tiles, 25,000 yards rubber sheeting, 120,000 rubber stoppers, 3,000 penis hard rubber syringes, 1,800 rectal hard rubber syringes and 7,500 rubber tourniquets. The quotations and quantities of each item which can be furnished in 20, 30, 60, 90 and 120 days must be stated.

PANAMA CIRCULAR 1180.—Proposals for hose, rubber tubing, packing, asbestos, gaskets, rubber valves, rubber boots. Sealed proposals will be received at the office of the general purchasing officer, the Panama Canal, Washington, D. C., until 10.30 A. M., November 15, 1917, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and information relating to this circular (No. 1180) may be obtained from this office or the offices of the assistant purchasing agents, 24 State street, New York City; Audubon Building, New Orleans, Louisiana, and Fort Mason, San Francisco, California; also from the United States engineer offices in the principal cities throughout the United States. Benedict Crowell, major, E. O. R. C., United States Army, general purchasing officer.

STATIONERY, No. 4820.—Sealed proposals will be received at the Field Medical Supply Depot, United States Army, 21 M street, Northeast, Washington, D. C., until November 19, 1917, for furnishing and delivering elastic bands and rubber penalty stamps.

ARMY AND NAVY AWARDS.

The following awards were made during October:

Class 122: 27,000 feet rubber lined cotton fire hose. Boston, Brooklyn, Norfolk and Charleston deliveries. The Manhattan Rubber Manufacturing Co., \$22,950. Class 123: 6,000 feet unlined linen fire hose, delivery, f. o. b. contractors' works. United States Rubber Co., \$3,180. Class 12: 7,500 feet interior communication cable. Government to furnish copper. Mare Island delivery. Safety Insulated Wire & Cable Co., \$2,704.40. Class 12: Rubber insulated interior communication cable. Mare Island delivery; contractor furnishing ingredients. The B. F. Goodrich Co., \$1,689.29.

WASHINGTON, D. C. FIRE HOSE.

The contract for furnishing 10,000 feet more or less of 2½-inch cotton rubber lined fire hose, has been awarded to the Manhattan Rubber Co., Passaic, New Jersey, at 81 cents per foot, and for 3,000 feet of 3-inch cotton rubber lined fire hose to the Fabric Fire Hose Co., New York City, at \$1.035 per foot.

KITE BALLOONS FOR THE NAVY.

The Navy Department has recently purchased through the Navy Yard, Washington, D. C., in the open market two kite balloons, complete, with ballnet, valves, baskets, rigging, etc., as follows:

Under N. S. A. Req. 533, Goodyear Tire & Rubber Co., Akron, Ohio, 1 kite balloon, complete, \$5,000.

Under N. S. A. Req. 534, The B. F. Goodrich Co., Akron, Ohio, 1 kite balloon, complete, etc., \$5,000.

BICYCLES FOR THE ARMY.

The contract for furnishing 10,000 bicycles for the Army has been awarded to the Westfield Manufacturing Co., Westfield, Massachusetts, at \$29.06 each. The price includes valve insides and caps, instead of complete valves, and a large tool bag. Additional charge of 40 cents for overseas boxing. Rifle attachments will be furnished on the cost plus percentage basis.

ARMY MEDICAL SUPPLY AWARDS.

The following awards have been made by the Surgeon General of the Army during October:

RUBBER DAMS.

The Atlanta Rubber Manufacturing Corp., New York City, 500 cartons rubber dams, plain, medium, \$1.06 per box; total, \$530.

GAS MASK MATERIAL.

The I. B. Kleinert Rubber Co., New York City, 5,750 yards of gas mask material, \$9,846.88.

NAVY SPECIFICATIONS FOR ASBESTOS SHEET PACKING.

THE following are the Navy Department specifications, 33P2b, May 1, 1917, superseding 33P2a, April 1, 1915, for asbestos metallic cloth sheet packing for high-pressure steam:

General Specifications.—1. General specifications for the inspection of material, issued by the Navy Department, in effect at date of opening bids, shall form part of these specifications.

Material.—2. The cloth to be woven from best quality of long fiber asbestos yarn, spun around fine brass wire, and treated with a rubber or other suitable heat-resisting compound not exceeding 50 per cent of the weight of the packing.

Construction.—3. For cloth 1/32 inch thick each strand of the warp and of the filler shall consist of one strand of asbestos yarn which is intertwisted with or spun around a brass or copper wire not heavier than 8 mils diameter. The weave must not run less than 22 strands of warp and not less than 12 strands of filler per square inch. For cloth 1/16 inch thick each strand of the warp and of the filler shall consist of two asbestos yarns, each of which is intertwisted with or spun around two brass or copper wires not heavier than 8 mils diameter. The weave must not run less than 20 strands of warp and not less than 11 strands of filler per square inch.

Friction Cement.—4. One-ply packing to be 1/32 inch or 1/16 inch thick. Two-ply or more must consist of two or more layers of one-ply 1/16 inch sheet built up and thoroughly cemented together with the same compound as is used in frictioning one-ply cloth.

Weight.—5. The weight of this sheet packing shall be not less per square yard than specified below in various thicknesses; a tolerance of 10 per cent above these weights to be allowed: 1/32 inch thick, 5 pounds per square yard; 1/16 inch thick, 6½ pounds per square yard; 1/8 inch thick, 12 pounds per square yard; 1/4 inch thick, 24 pounds per square yard.

Delivery.—6. This sheet packing shall be delivered in rolls 40 inches wide and weighing 100 pounds and 250 pounds unless otherwise ordered. To be purchased by the pound, the area to be calculated from the preceding paragraph (5) and shall be approximately square yardage so calculated.

Branding.—7. Each roll shall be marked with the maker's name, trade name or style number, neatly stenciled upon each linear yard.

Tests.—8. (a) Shall be capable of being bent double in any direction without injury or showing signs of cracking.

(b) When secured in iron clamps and subjected for 24 hours to a steam heat of 425 degrees F. it must not harden or crack.

THE RUBBER ASSOCIATION OF AMERICA.

RUBBER SUNDRIES MANUFACTURERS' DIVISION.

THE Rubber Sundries Division met in the association rooms on October 5. The following specifications for the standardization of rubber bands were adopted and have been recently filed with the National Association of Stationers and Manufacturers at the Chicago convention:

SPECIFICATIONS FOR RUBBER BANDS.

DESIGNATION OF NUMBERS.			
No.	Inch.	No.	Inch.
61 for	0¼	71 for	0¼
62 for	00¼	72 for	00¼
63 for	000¼	73 for	000¼
64 for	0000¼	74 for	0000¼
81 for	0½	91 for	0½
82 for	00½	92 for	00½
83 for	000½	93 for	000½
84 for	0000½	94 for	0000½
No.			
105 for heavy package 5 inches long			
106 for light package 6			
107 for heavy package 7			
109 for heavy package 9			

142 for light package 3½ inches long x ¼ inch
143 for light package 3½ inches long x ¼ inch

WIDTH AND LENGTH OF BANDS.

No.	Inch.	No.	Inch.
6	¾x1/16	63	¾x¼
7	¾x1/16	64	¾x¼
8	¾x1/16	71	2x¼
9	1x1/16	72	2x¼
10	1¼x1/16	73	3x¼
11	1½x1/16	74	3¼x¼
12	1¾x1/16	81	2x¼
14	2x1/16	82	2¼x¼
16	2½x1/16	83	3x¼
18	3x1/16	84	3½x¼
19	3½x1/16	91	2x¼
27	1¼x¼	92	2¼x¼
29	1½x¼	93	3x¼
30	2x¼	94	3½x¼
31	2¼x¼	105	package 5x¼
32	3x¼	106	package 6x¼
33	3½x¼	107	package 7x¼
50	2x1/16	109	package 9x¼
61	2x¼	142	light 3½x¼
62	2¼x¼	143	light 3½x¼

MECHANICAL RUBBER GOODS MANUFACTURERS' DIVISION.

The Mechanical Rubber Goods Division held a meeting in the association rooms on October 9. Considerable business of a routine character was transacted and the question of trade acceptances and their advantages to the rubber goods manufacturer and dealer was discussed.

ARBITRATION COMMITTEE.

The Committee on Arbitration met October 18 in the association rooms when matters relating to the rules governing arbitration were discussed.

STANDARDS FOR DRUGGISTS' RUBBER SUNDRIES.

THE following standards were adopted by the Rubber Sundries Manufacturers' Division of the Rubber Association of America, Inc., July 12, 1917:

CATHETERS (FRENCH SCALE).

Sizes number 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28.

COLON AND RECTAL TUBES (FRENCH SCALE).

Sizes number 22, 28, 30 and 32. Open end, one eye. Extra charge for two eyes. French scale to be considered standard, but mark with any other gage desired without extra charge.

STOMACH TUBES (FRENCH SCALE).

Sizes number 22, 28, 30 and 32. Length, five feet. Mark with French gage only. Open end, one eye. Extra charge for two eyes.

INVALID RINGS.

Sizes Number 4—12 inch diameter. Sizes Number 10—18 inch diameter.
6—14 inch diameter. 12—20 inch diameter.
8—16 inch diameter.

Color left to the option of individual manufacturers.

POLITZER BAGS.

Sizes 6, 8 and 10 ounces. Other sizes special.

PESSARIES (GERMAN RING):

Use only numbers which indicate millimeter sizes agreeing with the following:

No. 50 approximately 2 inches.	No. 70 approximately 2¾ inches.
No. 55 approximately 2¼ inches.	No. 75 approximately 3 inches.
No. 60 approximately 2½ inches.	No. 80 approximately 3¼ inches.
No. 65 approximately 2¾ inches.	No. 85 approximately 3½ inches.

INFLATED PESSARIES.

Sizes Nos. 1, 2, 3, 4 and 5. Red only. Made specially in white:

PURE GUM AND RED DRAINAGE TUBES.

Sizes ¼ x 3/64 inch.	Sizes ¼ x 3/32 inch.
5/32 x 3/64 inch.	5/16 x 3/32 inch.
3/16 x 1/16 inch.	¾ x 3/32 inch.
¼ x 1/16 inch.	¾ x ¼ inch.

RUBBER BANDAGES.

Inch.	Feet.	Inch.	Feet.	Inch.	Feet.
2 x 6	2½ x 6	3 x 9			
2 x 9	2½ x 9	3 x 12			
2 x 12	2½ x 12	3 x 15			

Weight optional with individual manufacturers.

INSTANTANEOUS TOURNIQUETS.

Standard length 24 inches.



RUBBER ASSOCIATION GOLF TOURNAMENT

THE first annual golf tournament of the Rubber Association of America was held at the Trenton Country Club, Trenton, New Jersey, October 16, 1917. Its object was to raise money for a tobacco fund for the "Sammies" in France. To swell this fund, the Rubber Manufacturers' Association of Trenton assumed every expense incidental to the occasion and entertained the members and guests with lavish hospitality. Out-of-town visitors were met at the station by a committee and conveyed in automobiles to the country club, where comfort and entertainment was thoughtfully provided. Luncheon and refreshments were served in the adjacent pavilions, while an excellent "jazz" band assiduously added music to the holiday occasion. This gathering of 150 rubber men was representative of the rubber trade and allied lines. A neat green ribbon badge with a copper and white metal pendant inscribed with the words, "Rubber Association of America, Trenton, Oct. 16, 1917," was provided for the golfers.



SOME OF THE RUBBER MEN WHO ATTENDED THE TRENTON GOLF TOURNAMENT.

THE PRIZES.

The Rubber Manufacturers' Association of Trenton put up for competition a handsome silver cup as a trophy to be won three times. The competition will be inter-sectional and the four or eight best scores from each section will decide the winner at each annual tournament. Katzenbach & Bullock donated a handsome Lennox vase, made in Trenton, as first prize for the low gross score. The second prize for low gross score was a gold finished thermos bottle, presented by E. B. Fulper & Co. The Rubber Association of America offered a silver mounted cane for the best low net score, a crystal flag button for second best, and a flag pin for third low net score. The tournament was an 18-hole medal play, and began promptly at 10

A. M., with fair cool weather that continued throughout the day. The personnel of the various divisions, representing Trenton, New York, Akron, New England and Canada, with the individual, gross, handicap and net score, follows:

TRENTON DIVISION.

Gross.	Hdc.	Net.	Gross.	Hdc.	Net.
J. C. Murray.....84	6	78	R. I. Stokes.....108	18	90
H. Cook.....82	0	82	C. E. Stokes.....102	12	90
A. B. Cornell.....96	12	84	H. B. Tobin.....106	15	91
W. N. Blodgett.....102	18	84	R. B. Caverly.....106	15	91
R. G. Morrison.....87	2	85	W. L. Lyall.....108	15	93
S. T. J. Bennett.....98	12	86	C. H. Brampton.....99	5	94
F. M. Camp.....96	8	88	J. A. Miller.....113	18	95
J. R. Lambert.....94	6	88	E. E. Buckleton.....111	14	97
C. H. Semple.....103	15	88	E. R. Kenderline.....119	18	101
H. F. Blanchard.....102	14	88	E. B. McKay.....120	18	102
Victor Von Schlegel.....101	12	89	P. B. Price.....115	12	103
L. P. Destribats.....105	15	90	W. R. Haggart.....123	18	105
G. H. Busby.....99	9	90	H. A. Rogers.....118	11	107
L. E. Adams.....104	14	90	A. Whitehead.....125	18	107

AKRON DIVISION.

Gross.	Hdc.	Net.	Gross.	Hdc.	Net.
J. W. Herron.....87	6	81	J. V. Mowe.....110	18	92
N. Noble.....96	12	84	R. E. Glass.....106	12	94
J. C. Constack.....106	18	86	S. J. Carkhoff.....113	18	95
J. A. Rishel.....98	12	86	F. H. Babcock.....115	18	97
A. D. Moss.....100	12	88	T. C. Marshall.....124	18	106
W. H. Yule.....97	8	89			

NEW YORK DIVISION.

Gross.	Hdc.	Net.	Gross.	Hdc.	Net.
A. A. Garthwaite.....98	18	80	W. J. Kelly.....111	18	93
A. H. Brown.....94	10	84	A. E. Gordon.....105	12	93
R. P. M. Eagles.....102	15	87	D. G. Kennedy.....108	13	95
J. T. Johnstone.....104	17	87	H. Davis.....113	18	95
W. L. Wadleigh.....105	18	87	E. Schultless.....115	18	97
D. S. Kubie.....106	18	88	C. W. Baird.....116	18	98
L. P. McMachiel.....103	13	90	E. O. Cummings.....113	15	98
L. H. Thomas.....94	3	91	R. Parker.....120	18	102
R. S. Hardy.....108	16	92	E. W. Belcher.....124	16	108
C. C. Case.....110	18	92	H. D. Reed.....127	18	109
H. H. Cummings.....110	18	92			

NEW ENGLAND DIVISION.

Gross.	Hdc.	Net.	Gross.	Hdc.	Net.
J. H. Learned.....102	14	88	D. A. Cutler.....120	12	108
F. H. Jones.....106	17	89	E. D. Hewins.....141	15	126
G. E. Hall.....110	14	96			

CANADIAN DIVISION.

Gross.	Hdc.	Net.
A. D. Thornton.....107	14	93

During the afternoon automobile parties were taken to visit Princeton and other points of interest, while those who were not golfing enjoyed tennis and football games.

THE BASEBALL GAME.

The game was called promptly at 4 P. M. by the umpire, W. W. Sanders, with the following line-up:

TRENTON GIANTS.		RUBBER MFRS. ASS'N SOX.	
Tobin	1B.	Low	3B.
Maashsen	3B.	Murray, C. E.	P.
Trauman	R. F.	Stokes	S. S.
Murray, E.	2B.	Begoden	R. F.
McGrory	S. S.	Dolton	C.
Buckleton	L. F.	Comstock	1B.
Pfaff	C. F.	Bedford	2B.
Milne	C.	Nason	L. F.
Kittle	P.	Stumpf	R. F.

It was an exciting game from the start, both teams hitting the ball freely, two and three baggers being common occurrences. The infield play of both teams was at times a bit ragged, doubtless due to the poor condition of the grounds. The outfield of the Trentons was particularly strong, and Captain Buckleton's fielding of Stokes' long drive to left field, was a feature of the game. Pfaff's long fly to center failed to score, for he was put out at third by Low. In the last inning, with the bases full, McGrory's long hit to right field brought in the winning run for Trenton with a score of 15 to 14.

THE DINNER.

The members and guests assembled in the club house at 6 P. M., where an excellent dinner was served.



J. A. LAMBERT.

After the coffee, J. A. Lambert, president of the Trenton Rubber Manufacturers' Association, who served as toastmaster, delivered a brief address of welcome. He then introduced E. C. Stokes, formerly governor of New Jersey, who received a rousing ovation. He admirably sustained his reputation as an after-dinner speaker by a patriotic address that thrilled and inspired his appreciative audience.

Mr. Lambert then announced the winners of the golf tournament and distributed the prizes.

THE WINNERS.

Trenton carried off the team trophy, with a total net score of 328 for the first four men. The New York division was a close second and finished with a score of 333. Akron was third with a total of 337, and New England finished fourth with a score of 381.

H. T. Cook, of Trenton, won the low gross score prize with a mark of 82 and was awarded the Lennox vase. The second prize for low gross went to J. C. Murray, of Trenton, who turned in a score of 84, and received the gold finished thermos bottle. The first prize for low net score was won by A. A. Garthwaite, of Conshohocken, with a score of 80. J. C. Murray, with a net score of 78, was really entitled to this prize, but was satisfied with one prize and surrendered his place to Mr. Garthwaite, who received the handsome cane.

The second prize for low net score was won by J. W. Herron, of Akron, who turned in an 81 and received the crystal button. H. D. Reed, of New York, who turned in an 82, received the flag pin, while A. D. Thornton, the only Canadian representative present, was also awarded an American flag to wear in the lapel of his coat.

Mr. Thornton then spoke briefly, telling of the close relationship that exists between Canada and the United States, now fighting side by side for the cause of liberty. Captain

Cavanaugh, U. S. A., made a strong appeal for the tobacco fund by relating instances showing conclusively that tobacco is a prime necessity for our troops. W. J. Kelly then spoke in the same vein and inspired the audience to greater giving



GOLF TOURNAMENT TROPHY AND INDIVIDUAL PRIZES.

that resulted, after passing the hat, in a collection of \$400 being added to the fund. After a brief address by C. H. Oakley, the meeting was brought to a close by the toastmaster, who speeded the parting guests with words of appreciation and regard.

The following is the list of those present at the dinner:

F. W. Adams, Elkhart, Indiana.
 L. E. Adams, Elkhart Rubber Works, Philadelphia, Pennsylvania.
 T. A. Ashley, T. C. Ashley & Co., Boston, Massachusetts.
 F. H. Babcock, J. H. Lane & Co., New York.
 C. W. Baird, Rubber Trading Co., New York.
 R. B. Baird, Rubber Trading Co., New York.
 T. W. Bassett, United States Rubber Reclaiming Co., New York.
 J. E. Baum, Empire Rubber & Tire Co., Trenton, New Jersey.
 B. Bedford, Luzerne Rubber Co., Trenton, New Jersey.
 E. W. Belcher, American Hard Rubber Co., New York.
 A. Bers, E. Bers & Co., New York.
 E. Bers, E. Bers & Co., New York.
 S. T. J. Bennett, Elkhart Rubber Co., Philadelphia, Pennsylvania.
 H. F. Blanchard, Thermoid Rubber Co., Trenton, New Jersey.
 W. L. Blodgett, Hamilton Rubber Manufacturing Co., Trenton, New Jersey.
 W. N. Blodgett, Hamilton Rubber Manufacturing Co., Trenton, New Jersey.
 J. H. Britton, Crescent Insulated Wire & Cable Co., Trenton, New Jersey.
 J. S. Broughton, United & Globe Rubber Manufacturing Co., Trenton, New Jersey.
 A. H. Brown, Meyer & Brown, New York.
 E. E. Buckleton, Liverpool, England.
 E. L. Bullock, Katzenbach & Bullock Co., New York.
 G. Busby, "Auto Trade Journal," Trenton, New Jersey.
 A. S. Cadwallader, Anchor Oil & Supply Co., Trenton, New Jersey.
 S. Cadwallader, Whitehead Brothers Rubber Co., Trenton, New Jersey.
 S. G. Carkhuff, Firestone Tire & Rubber Co., Akron, Ohio.
 R. W. Case, Hamilton Rubber Manufacturing Co., Trenton, New Jersey.
 C. C. Case, Revere Rubber Co., New York.
 Capt. Cavanaugh, United States Rubber Co., New York.
 J. J. Chandler, Hoggson & Pettis Manufacturing Co., New Haven, Connecticut.
 E. T. Comley, Acme Rubber Manufacturing Co., Trenton, New Jersey.
 J. D. Comstock, The Falls Rubber Co., Cuyahoga Falls, Ohio.
 J. D. Connelly, United & Globe Rubber Manufacturing Co., Trenton, New Jersey.
 C. S. Cook, J. Spencer Turner Co., New York.
 H. T. Cook, Acme Rubber Manufacturing Co., Trenton, New Jersey.
 A. Boyd Cornell, Trenton, New Jersey.
 E. O. Cummings, Wm. H. Cummings & Son, New York.
 H. H. Cummings, Wm. H. Cummings & Son, New York.
 D. A. Cutler, Alfred Hale Rubber Co., Boston, Massachusetts.
 B. M. Cullen, Philadelphia, Pennsylvania.
 W. C. Dambman, Crescent Insulated Wire & Cable Co., Trenton, New Jersey.
 H. N. Davis, Lee Tire & Rubber Co., Conshohocken, Pennsylvania.
 Horace De Lissar, Ajax Rubber Co., Inc., Trenton, New Jersey.
 S. H. Dodd, Vulcanized Rubber Co., New York.
 E. B. Dolton, W. H. Stiles, New York.
 W. R. Dolton, Empire Tire & Rubber Co., Trenton, New Jersey.
 L. P. Desribats, Ajax Rubber Co., Inc., Trenton, New Jersey.
 R. P. M. Eagles, Taylor Armitage & Co., New York.
 F. H. Drake, Sempie Rubber Co., Trenton, New Jersey.
 H. Fera, Jr., A. W. Faber, Newark, New Jersey.
 F. F. Fox, Rubber Trading Co., New York.
 E. B. Fulper, Trenton, New Jersey.
 A. A. Garthwaite, Lee Tire & Rubber Co., Conshohocken, Pennsylvania.
 W. E. Gillespie, Stamford Rubber Supply Co., Stamford, Connecticut.
 H. S. Godwin, Wilson, Holgate Far East, Limited, Singapore.
 A. E. Gordon, Gryphon Rubber & Tire Corp., New York.
 R. E. Glass, Firestone Tire & Rubber Co., Akron, Ohio.
 A. B. Greenough, Boston Yarn Co., Boston, Massachusetts.

W. G. Grieb, Ajax Rubber Co., New York and Trenton.
 G. E. Hall, Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.
 J. F. Hall, Globe Rubber Tire Manufacturing Co., New York.
 S. Hardy, J. T. Johnstone & Co., Inc., New York.
 D. D. Haldane, J. T. Johnstone & Co., Inc., New York.
 C. W. Harrison, Bloomingdale Rubber Co., New York.
 W. H. Herbold, United & Globe Rubber Manufacturing Co., Trenton, New Jersey.
 J. W. Herron, Henderson & Korn, New York.
 E. D. Hewins, Boston, Mass.
 W. F. Higgins, Home Rubber Co., Trenton, New Jersey.
 H. B. James, Globe Rubber Tire Manufacturing Co., New York.
 J. T. Johnstone, New York.
 F. H. Jones, Tyer Rubber Co., Andover, Massachusetts.
 J. R. Kenderline, Crescent Insulated Wire & Cable Co., Trenton, New Jersey.
 W. J. Kelly, Arnold & Zeiss, New York.
 D. G. Kennedy, American Hard Rubber Co., New York.
 F. L. Kittle, Chas. E. Wood & Co., New York.
 E. B. Knowles, Thermoid Rubber Co., Trenton, New Jersey.
 D. S. Kubie, Raw Products Co., New York.
 J. A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey.
 J. R. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey.
 J. H. Learned, Revere Rubber Co., Boston, Massachusetts.
 C. H. Low, United States Rubber Reclaiming Co., New York.
 J. S. Lowman, Philadelphia Rubber Works Co., New York.
 W. L. Lyall, Brighton Mills, Passaic, New Jersey.
 A. McDonald, Essex Rubber Co., Trenton, New Jersey.
 R. F. M. McGrory, Katzenbach & Bullock Co., New York.
 E. B. McKay, Empire Rubber & Tire Co., Trenton, New Jersey.
 S. McMaster, Philadelphia, Pennsylvania.
 L. P. MacMichael, New York.
 A. Marcus, Somerset Rubber Reclaiming Co., New Brunswick, New Jersey.
 T. C. Marshall, Kelly-Springfield Tire Co., Akron, Ohio.
 W. A. Metzler, United & Globe Rubber Manufacturing Co., Trenton, New Jersey.
 A. C. Meyers, Standard Underground Cable Co., Perth Amboy, New Jersey.
 J. A. Miller, Sterling Tire Corp., Rutherford, New Jersey.
 G. Milne, Wm. H. Stiles, New York.
 W. MacKone Milner, "The Rubber Age," New York.
 D. A. Mock, Raw Products Co., New York.
 W. M. Morse, THE INDIA RUBBER WORLD, New York.
 C. E. Murray, Jr., Empire Rubber & Tire Co., Trenton, New Jersey.
 J. C. Murray, Empire Rubber & Tire Co., Trenton, New Jersey.
 J. E. Myers, Acme Rubber Manufacturing Co., Trenton, New Jersey.
 R. G. Morrison, Empire Rubber & Tire Co., Trenton, New Jersey.
 A. D. Moss, Jr., The B. F. Goodrich Co., Akron, Ohio.
 H. R. Nason, Empire Rubber & Tire Co., Trenton, New Jersey.
 N. S. Noble, The B. F. Goodrich Co., Akron, Ohio.
 C. H. Oakley, Essex Rubber Co., Trenton, New Jersey.
 H. Paddock, Empire Rubber & Tire Co., Trenton, New Jersey.
 R. Parker, Parker, Stearns & Co., Brooklyn, New York.
 E. F. Pfaff, THE INDIA RUBBER WORLD, New York.
 L. J. Plumb, United States Rubber Reclaiming Co., New York.
 P. B. Price, Pequannoc Rubber Co., Butler, New Jersey.
 H. D. Reed, Bishop Gutta Percha Co., New York.
 J. A. Rishel, The B. F. Goodrich Co., Akron, Ohio.
 H. A. Rogers, Woven Steel Hose & Rubber Co., Trenton, New Jersey.
 W. W. Sanders, Empire Rubber & Tire Co., Trenton, New Jersey.
 A. M. Sawyer, Vulcanized Rubber Co., Morrisville, Pa.
 E. Schulthes, Gutta Percha & Rubber Manufacturing Co., New York.
 C. H. Semple, Semple Rubber Co., Trenton, New Jersey.
 F. W. Servis, Combination Rubber Manufacturing Co., Bloomfield, New Jersey.
 W. H. Servis, Hamilton Rubber Manufacturing Co., Trenton, New Jersey.
 D. A. Shirk, Rare Metal Products Co., Glen Ridge, New Jersey.
 G. W. Skirm, United & Globe Rubber Manufacturing Co., Trenton, New Jersey.
 W. H. Stiles, New York.
 C. E. Stokes, Home Rubber Co., Trenton, New Jersey.
 R. J. Stokes, Thermoid Rubber Co., Trenton, New Jersey.
 E. C. Stokes, ex-governor of New Jersey.
 A. F. Stumpf, Katzenbach & Bullock Co., New York.
 A. S. Thalheimer, United States Rubber Reclaiming Co., Inc., New York.
 L. H. Thomas, Arnold & Zeiss, New York.
 W. G. Thomas, Inter-ocean Oil Co., New York.
 J. H. Thompson, Morris & Co., Inc.
 A. D. Thornton, Canadian Consolidated Rubber Co., Montreal, Quebec, Canada.
 P. D. Thropp, John E. Thropp's Sons Co., Trenton, New Jersey.
 H. B. Tobin, Woven Steel Hose & Rubber Co., Trenton, N. J.
 V. Von Schlegell, New York.
 H. S. Vorhis, the Rubber Association of America, Inc., New York.
 W. L. Wadleigh, Wadleigh Co., Limited, Singapore.
 Alfred Whitehead, Whitehead Brothers Rubber Co., Trenton, New Jersey.
 R. R. Whitehead, Crescent Insulated Wire & Cable Co., Trenton, New Jersey.
 C. D. Wilson, Luzerne Rubber Co., Trenton, New Jersey.
 C. T. Wilson, New York.
 E. H. Wilson, Dural Rubber Corp., Flemington, New Jersey.
 C. E. Wood, New York.
 W. H. Yule, The B. F. Goodrich Co., Akron, Ohio.

THE COMMITTEES.

The following are the committees that made this outing an unqualified success:

Rubber Association of America Outing Committee: W. J. Kelly, chairman; W. O. Rutherford, R. L. Rice, and H. S. Vorhis, secretary.

TRENTON RUBBER MANUFACTURERS' COMMITTEES.

GOLF COMMITTEE.

J. C. Murray, chairman, Empire Rubber & Tire Co.
 H. T. Cook, Acme Rubber Manufacturing Co.
 C. E. Stokes, Home Rubber Co.
 L. P. Destribats, Ajax Rubber Co.

W. N. Blodgett, Hamilton Rubber Manufacturing Co.
 B. Bedford, Luzerne Rubber Co.
 W. H. Sayen, Jr., Mercer Rubber Co.

ENTERTAINMENT COMMITTEE.

E. B. Fulper, chairman, E. B. Fulper & Son.
 H. B. Tobin, Woven Steel Hose & Rubber Co.
 C. H. Oakley, Essex Rubber Co.
 C. E. Stokes, Home Rubber Co.
 F. F. Katzenbach, Katzenbach & Bullock Co.
 E. E. Buckleton, Liverpool, England.
 C. E. Murray, Jr., Empire Rubber & Tire Co.

COMMITTEE ON AUTOMOBILES AND TRANSPORTATION.

John S. Broughton, United & Globe Rubber Manufacturing Co.
 W. H. Blodgett, Hamilton Rubber Manufacturing Co.

RECEPTION COMMITTEE.

Alfred Whitehead, chairman, Whitehead Brothers Rubber Co.
 W. J. H. Stokes, Thermoid Rubber Co.
 C. E. Murray, Empire Rubber & Tire Co.
 G. R. Cook, Acme Rubber Manufacturing Co.
 J. E. Baum, Empire Rubber & Tire Co.
 Oliver Stokes, Thermoid Rubber Co.
 Horace Delisser, Ajax Rubber Co.
 H. B. James, United & Globe Rubber Manufacturing Co.
 J. P. Hall, Globe Tire & Rubber Co.
 W. H. Servis, Hamilton Rubber Manufacturing Co.
 E. B. McKay, Empire Tire & Rubber Co.
 C. H. Semple, Semple Rubber Co.
 W. W. Sanders, Empire Rubber & Tire Co.
 C. G. Coleman, Del-ion Tire & Rubber Co.
 A. M. Sawyer, Vulcanized Rubber Co.
 R. J. Stokes, Thermoid Rubber Co.
 W. H. Sayen, Jr., Mercer Rubber Co.
 H. L. Boyer, Jos. Stokes Rubber Co.

CRUDE RUBBER COMMITTEE.

A. Boyd Cornell, chairman, Trenton, New Jersey.
 Frank Fox, Rubber Trading Co.
 Thomas Hydes, Trenton, New Jersey.
 E. B. Dolton, Jr., W. H. Stiles.

MUSIC AND DECORATIONS.

C. H. Semple, Semple Rubber Co.
 C. D. Wilson, Luzerne Rubber Co.

J. A. Lambert, who originated the Trenton plan, and other members of the various committees were congratulated by all, especially the visitors, for the enjoyable entertainment provided by the rubber men of Trenton.

A MODERN STREET FLUSHING TRUCK.

The cost of street flushing, sprinkling and cleaning is a very large item in the running expenses of a modern city. Automobile trucks of special design are now being used with the



STREET FLUSHING TRUCK EQUIPPED WITH FIRESTONE GIANT TIRES.

expectation of obtaining better results at a lower cost than by the old system. A flushing truck is here shown, the front wheels being equipped with 37 x 7 and the rear wheels with 40 x 14 Firestone Giant Tires. The water tank may be replaced by dumping bodies, and the trucks used for removing snow during the winter months.

NOVEMBER 1, 1917.]



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aiding you at every turn—

You play with Goodrich Tennis
Balls, Hand Balls and the like.

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THE B. F. GOODRICH CO.
AKRON, OHIO. *The City of Opportunity*

[NOVEMBER 1, 1917.]

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Chicago



News of the American Rubber Trade

NOTABLE EXPANSION OF THE REPUBLIC RUBBER CO.

MR. GUY E. NORWOOD, president of the Republic Rubber Co., Youngstown, Ohio, has announced the completion of the organization of the Republic Rubber Corp., which is organized under the laws of the State of New York and has acquired a controlling interest in the Republic Rubber Co., of Youngstown, Ohio, and the Knight Tire & Rubber Co., of Canton, Ohio.

The Republic plant is a thoroughly modern rubber factory with a pneumatic tire capacity of something over 2,000 tires a day, which will be immediately increased to 3,000 per day. The track tire output will be tripled, and increases will be made in the various mechanical goods departments, which are already very large.

The property of the Knight Tire & Rubber Co. is located on the main line of the Pennsylvania Railroad at Canton, Ohio, with excellent water supply and unusually good shipping facilities. It will be used by the new concern entirely as a tire factory and is to have a capacity of at least 1,000 tires a day, part of which will be made under the Knight brands of "Knight" and "Blackstone."

The Republic Rubber Corp., which was incorporated in New York on October 6, will have an authorized preferred capital of \$10,000,000, divided into 100,000 shares, with the usual \$100 par value. It will have an authorized common capital of 250,000 shares of no par value. In organizing with nominal or no par value shares, the company is following one of the most improved methods of present day financing. Under such organization, all items of good-will or of uncertain value are eliminated from the balance sheet, and the common shares as issued represent the actual values of the properties, exclusive of good-will items.

Both preferred and common shares of the new company will be made non-taxable in Ohio.

It is understood that the main office of the new corporation will be retained in Youngstown, the officers and directors being: Guy E. Norwood, president; L. T. Petersen, vice-president; H. J. Woodard, general manager of sales; Mark E. Roe, consulting engineer.

Board of Directors: Thomas L. Robinson, chairman; Guy E. Norwood, Henry M. Garlick, C. H. Booth, John Tod, Robert Bentley, M. I. Arms, John T. Harrington, R. E. Cornelius, John C. Wick and L. T. Petersen.

The New York office of the corporation will be in the Singer Building, and through this office the export business will be handled.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on October 25 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois.

	Bid.	Asked.
Ajax Rubber Co. (new).....	58½	60
Firestone Tire & Rubber Co., common.....	96	99
Firestone Tire & Rubber Co., preferred.....	98	102
The B. F. Goodrich Co., common.....	40¼	42
The B. F. Goodrich Co., preferred.....	100	101
Goodyear Tire & Rubber Co., common.....	162	166
Goodyear Tire & Rubber Co., preferred.....	99	101
Kelly-Springfield Tire Co., common.....	44	46¼
Kelly-Springfield Tire Co., preferred.....	85	90¼
Miller Rubber Co., common.....	135	140
Miller Rubber Co., preferred.....	98	101
Portage Rubber Co.....	118	125
Rubber Goods Manufacturing Co., preferred.....	..	..
Swinehart Tire & Rubber Co.....	35	45
United States Rubber Co., common.....	58¼	59
United States Rubber Co., preferred.....	101¼	102¼

DIVIDENDS.

The Apsley Rubber Co. paid its regular semi-annual dividend of 2 per cent on common stock October 1 to stockholders of record September 29.

The B. F. Goodrich Co. has declared a regular quarterly dividend of \$1.75 per share on preferred stock, payable January 2, 1918, to stockholders of record December 21, 1917. A dividend of \$1.00 per share on common stock has also been declared, payable February 15, 1918, to stockholders of record February 5, 1918.

The Kelly-Springfield Tire Co. has declared its regular quarterly dividend of \$1.00 per share on common stock, payable November 1 to stockholders of record October 15.

The New Jersey Zinc Co. has declared a quarterly dividend of 4 per cent, payable November 10 to stockholders of record October 31.

The United States Rubber Co. paid a quarterly dividend of 2 per cent on preferred stock October 31, to stockholders of record October 15.

The Westinghouse Electric & Manufacturing Co. paid a quarterly dividend of 1¼ per cent on preferred stock October 15, and a quarterly dividend of 1¼ per cent on common stock October 31. Both dividends were payable to stockholders of record October 5.

MEETINGS OF THE NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS.

The Rubber Section of the National Association of Waste Material dealers was held October 16, at the Hotel Astor, New York City, with Paul Lowenthal in the chair. The meeting was well attended, about 20 members being present. The classification of inner tubes and the proposed increase in freight rates were the principal topics under discussion and the question of quoting inner tubes and inner tubes without seats and patches separately was argued pro and con, with opinion about evenly divided. A committee of three is to be appointed by the chairman to work with the Traffic Association on classification matters and devise a uniform system of labeling and tagging the various sorts of rubber scrap.

NEW STEAMSHIP LINE TO THE FAR EAST.

The Pacific Mail Steamship Co., San Francisco, California, has established a Manila-East India service from that port to relieve the very acute freight situation in Malaya and India, brought about by the requisitioning of the ships of the Indo-China Line by the British Government. The one sailing per month by that line has proved utterly inadequate to handle the enormous business in rubber, gunny bags and tin, and the placing of the American steamers *Santa Cruz* and *Colusa* of 12,000 and 15,000 tons, respectively, in this new service will afford a welcome measure of relief. As soon as a third steamer can be secured, a sailing will occur every thirty days. The route is direct to Manila, and thence to Singapore, Calcutta and Colombo, returning via Singapore, Manila, Cebu and Honolulu, the round trip requiring about ninety days. A limited number of passengers will also be carried.

CONSUL GENERAL AT SINGAPORE TO VISIT UNITED STATES.

Consul General Edwin N. Gunsaulus, at Singapore, Straits Settlements, is expected in the United States November 1. All inquiries concerning trade matters in the Straits Settlements and Malay Peninsula may be addressed to him in care of the Consular Bureau, Department of State, Washington, D. C.

W. T. RODENBACH.

WILLIAM T. RODENBACH, treasurer of Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut, has been identified with that company for more than thirty years, and was its secretary from 1889 until chosen treasurer in 1895, which responsible position he still holds with the company.



W. T. RODENBACH.

Meanwhile, for sixteen years he was manager of the reclaiming plant of the United States Rubber Co., at Naugatuck, during which time he probably bought a larger volume of scrap rubber, principally old boots and shoes, than any other person in this country, his aggregate purchases running into hundreds of thousands of tons, all of which was made into reclaimed rubber under his direction. Since 1907 he has been connected in an official capacity with the Naugatuck Chemical Co., Naugatuck, Connecticut, maker of chemicals.

Born in New York City September 19, 1854, and educated in the public schools and the College of the City of New York, on his graduation in 1874 he taught school, and was so successful that he became a principal in 1876, retaining this position for ten years. He entered the employ of Goodyear's Metallic Rubber Shoe Co., July 1, 1886, and has ever since been an important factor in the management of this concern.

Teacher, manager, manufacturer, reclamer, Mr. Rodenbach's interests also include banking, education and municipal government. For three years he was Mayor of Naugatuck. For twenty years he has served as president of the Board of Education. He has been trustee and vice-president of the Naugatuck Savings Bank, and president of the Naugatuck Manufacturing Co. since 1898.

A man of such varied interests, filling all these offices with marked ability, he yet finds time for social and fraternal activities. He is a thirty-second degree Mason, a member of the Rubber Reclaimers Club of New York City, the Graduates Club, New Haven, Connecticut, and the Delta Upsilon College Fraternity. He has a wide acquaintance in the trade, not only in this country but abroad, and a host of friends who are unanimous in praise of his many good qualities.

POLACK SALES ORGANIZATION CHANGES.

James A. Harris, formerly Philadelphia Branch manager, has been called to assist in the New York territory.

T. J. Manning, who has been appointed manager of the Philadelphia Branch, is well and favorably known in that city.

H. E. Heyder, formerly manager of the Polack Brooklyn branch, has been appointed Western manager of factory sales, with headquarters in Detroit, Michigan.

Englert & Englert, Grant boulevard and 6th avenue, Pittsburgh, Pennsylvania, are now distributors for Polack truck tires in Pittsburgh, west of Altoona and the state of West Virginia.

J. W. Conway, manager of the Polack factory at Bridgeport,

Connecticut, has begun a tour of the larger cities where Polack branches are located.

PERSONAL MENTION.

W. P. Berrien, vice-president and sales manager of the Batavia Rubber Co., Batavia, New York, has recently resigned.

Martin L. Cramer has resigned his position as purchasing agent of the Michelin Tire Co., Milltown, New Jersey, and accepted a position as director of purchases with the American Writing Paper Co., Holyoke, Massachusetts.

F. C. Keenan has been appointed manager of the Chicago branch of the Pennsylvania Rubber Co., Jeannette, Pennsylvania.

H. C. Gentry is now connected with the Philadelphia sales department of the Thermoid Rubber Co. of Trenton, New Jersey. At one time he was associated with the Acme Rubber Manufacturing Co., Inc., of New York City, in its Southern branches.

William E. Barker, who recently resigned as manager of footwear sales of the United States Rubber Co., New York City, sailed from Vancouver, British Columbia, on the steamship *Empress of Asia*, October 25, to be gone six months, visiting Japan, China, the Philippines and Sumatra in the interests of the above-named company.

In the account of the Rubber Section meeting during the convention of the American Chemical Society, published in the October issue of *THE INDIA RUBBER WORLD*, omission was inadvertently made of the participation of Robert S. Posmontier, Philadelphia, Pennsylvania, in the symposium on the use of accelerators. In this discussion, Mr. Posmontier called attention to some of the better known accelerators and their relative efficiency.

In company with three other Lincoln Highway officials, F. A. Seiberling, president of the Goodyear Tire & Rubber Co., Akron, Ohio, and a director of the National Highway Association, was nursing a pair of badly blistered hands recently. While inspecting a seventeen-mile strip of proposed highway on a desolate stretch of the great Salton Desert, west of Great Salt Lake, Utah, the big motor car in which the party was traveling settled through the hard crust into a treacherous sub-surface hole, and was extricated with the utmost difficulty, after half a day of toil under the heat and glare of a merciless sun. The experience was one not to be forgotten, but none of the party really regrets the adventure.

W. H. P. Reilly, of the Ajax Rubber Co., Trenton, New Jersey, has been appointed Pacific Coast manager, with headquarters at San Francisco, California.

Walter Jackson, Singapore, crude rubber dealer, is in the United States on business.

C. E. Harding has been appointed manager of the Columbus, Ohio, branch of the Kelly-Springfield Tire Co.

J. C. Baldwin has recently joined the crude rubber department of W. R. Grace & Co., New York.

The \$500,000 hospital recently dedicated at Greenwich, Connecticut, was donated by E. C. Benedict, the New York banker, well known to the rubber trade for his interest in Amazon River rubber enterprises. The hospital will accommodate about 200 patients and will replace two buildings previously used.

F. Henry Venn has accepted a position in the development department of the United States Rubber Co., New York City, and will be stationed at New Haven, Connecticut.

Edmund B. Siegerson has been appointed manager of sales promotion for the McGraw Tire & Rubber Co., East Palestine, Ohio. He was formerly with the Goodyear Tire & Rubber Co. of Akron, Ohio, occupying a position as branch manager at Albany and Buffalo, New York.

J. A. Ryan has been put in charge of the St. Louis, Missouri, Branch of the Michelin Tire Co., Milltown, New Jersey. He was previously employed in the company's factory and succeeds Fred Morey, who has been transferred to the factory.

TRADE NOTES.

The Monatiquot Rubber Works Co., South Braintree, Massachusetts, maker of "Naturized Rubber," is now represented in Ohio, Indiana and Wisconsin by Pell & Dumont, crude rubber brokers, 68 Broad street, New York.

In order to handle adequately the increased volume of business of both The Electric Cable Company and the Habirshaw Electric Cable Company a wire drawing plant was necessary, and therefore The Bare Wire Co.'s plant at Yonkers, New York, was built and is now in operation.

A special meeting of the stockholders of the Stungo-Radium Rubber Co., Washington, Pennsylvania, was held recently, at which a resolution was adopted changing the corporate name of the company to the Washington Rubber Company, under which it will hereafter do business. A new board of directors was elected, and the company otherwise reorganized.

The United States Rubber Co., New York City, announces net earnings for the six months from January 1, to June 30, 1917, after deducting all interest charges and after making an allowance of \$500,000 on account of War Excess Profits Tax, (subject to adjustment when actual figures can be ascertained) were \$7,239,966.

The Corn Products Refining Co.'s plant at Edgewater, New Jersey, has resumed operations. This plant handles approximately 30,000 bushels of corn daily when running at capacity, and is the corporation's second largest plant, being exceeded only by the plant at Argo, Illinois, which has a capacity of between 50,000 and 60,000 bushels of corn daily.

The Porter Rubber Co., Salem, Ohio, has elected the following directors: A. H. Boyd, L. H. Brush, Grant Hill and J. B. Rea, of Salem, Ohio, and E. E. Boyd, D. P. Hopkins and J. S. Hess, of Pittsburgh, Pennsylvania.

The Quaker City Rubber Co., Philadelphia, Pennsylvania, is to erect an addition to its plant at Comly and Milner streets, the estimated cost being \$5,000.

The New York branch of the Rubber Products Co., Barberton, Ohio, has been moved from 148 West Sixty-eighth street to 243 West Fifty-fifth street. James H. Riley, the former New England representative of the company, is manager.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has leased a five-story factory at 927-31 North Front street, Philadelphia, Pennsylvania. The building will have about 60,000 square feet of manufacturing space.

Bids are being accepted by the Pearce Rubber Corp., Philadelphia, Pennsylvania, for the erection of a two-story building, 160 by 225 feet, to cost about \$150,000.

The United States Raincoat Co., New York City, has increased its capital from \$24,000 to \$74,000.

The General Electric Co., Schenectady, New York, is erecting additions to its plant at Erie, Pennsylvania, and will specialize in the production of gray iron castings. The new buildings will include a two-story machine shop, a seven-story pattern shop and a one-story foundry, the cost being about \$1,850,000. The company will build a two-story brick and steel drop forge plant at Schenectady, New York, and bids are now being accepted.

A petition in bankruptcy has been filed against the American Rubber Manufacturing Co., Trenton, New Jersey. Israel H. Albert, of that city, has been appointed receiver.

The Indiana Rubber & Insulated Wire Co., Jonesboro, Indiana, has presented all employees in its service for one year or more with a life insurance policy, through the Metropolitan Life Insurance Co. of New York City. The policy is in accordance with the length of service and will be increased yearly, every holder having the privilege of naming the beneficiary. The total amount will approximate \$250,000, all expenses being paid by the company.

The Raybestos Co., of Bridgeport, Connecticut, is to erect a one-story factory, 80 by 100 feet, to cost about \$23,500. When finished, about 500 additional hands will be employed.

Nordheim & Co. have opened an office at 67 Wall street,

New York City, for the purpose of conducting an import, export and commission business, acting as agents for Von Nordheim & Co., Batavia, Java, and the Indian Trading Co., Soerabaya and Rotterdam. This firm is a partnership formed by R. von Nordheim of Von Nordheim & Co. and J. J. A. Meel, of the Indian Trading Co.

The Morse Chain Co., Ithaca, New York, which manufactures transmission chains, will construct a new four-story addition to its plant on South Tioga street.

COTTON TRADE NOTES.

Albert D. Smith & Co. will remove from 35 Thomas street to the Dun Building, 290 Broadway, where they will occupy the ground floor between now and February 1.

The "Textile World Journal" says that "Mitafifi," as applied to Peruvian cotton grown from Egyptian seed, is claimed to be a misnomer by domestic cotton experts who have sampled considerable quantities of this new Peruvian staple. According to them, it has more of the characteristics of Nubari cotton and would probably command a better price if this fact were known.

At a recent conference of 100 representative cotton manufacturers held in Washington, D. C., resolutions were adopted to secure a standard ginhouse bale 54 x 27 inches.

The Bibb Manufacturing Co., Macon, Georgia, which has mills at Macon, Columbus, Porterdales and Reynolds, has announced that its net profit for the past year total \$1,500,000, being the most prosperous twelve months of the company's existence. It has declared a cash dividend of 12 per cent on its capitalization of \$2,500,000 and increased its capital stock to \$3,000,000, giving to present stockholders 20 per cent of their holdings in the new capital stock.

It is reported locally that the Goodyear Cotton Mills, Good-year, Connecticut, are busy installing new machinery and that the night force is to be largely increased to facilitate the turning out of the mills' product.

The Walker Webbing Co., Brockton, Massachusetts, is the new name for the plant formerly conducted at 60 South Skinner street by the Star Webbing Works, Inc. Dress belting, tire tapes and other webs will be manufactured by the new company. J. Townsend Walker is president and treasurer; E. D. McLoud, secretary, and R. Cowgill, superintendent.

CANADIAN NOTES.

George P. Marsh, of the sole and heel department of the Canadian Consolidated Rubber Co., Montreal, who is with the Twenty-fourth Battalion at the front, has been awarded a military medal for heroism at Vimy Ridge. He is the son of H. G. Marsh, of the mailing department of the same company.

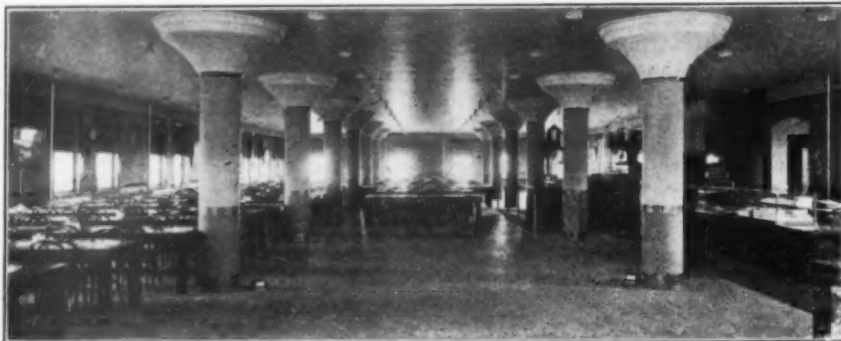
The Ajax Rubber Co., London, Ontario, will build and equip a plant to cost at least \$300,000, in which it will manufacture 900 tires daily, and employ 250 hands.

MATLACK ENTERS THE PAPER INDUSTRY.

J. C. Matlack, whose resignation as secretary and general manager of the Ajax Rubber Co., New York City, was mentioned in THE INDIA RUBBER WORLD last March, has been elected vice-president of the American Writing Paper Co., Holyoke, Massachusetts. Mr. Matlack brings to this new position the energy and ability which were such important factors in the building up of the business of the Ajax Rubber Co. since its organization in 1911. His previous business connections were with the Simmons Hardware Co., St. Louis, Missouri; then purchasing agent for the 60 factories of the American Bicycle Co.; later, president of the International Automobile and Vehicle Tire Co., and then vice-president and general manager of its successor, the Michelin Tire Co., which position he resigned to associate himself with the Ajax Rubber Co. He has many friends in the tire and rubber trade who will wish him continued success in his new position.

REPUBLIC CLUBHOUSE REDUCES THE LABOR TURNOVER.

The clubhouse of the Republic Rubber Co., Youngstown, Ohio, has solved the problem of reducing the labor turnover to the minimum and is regarded as a good-will asset well worth the investment of \$48,600. Good food at reasonable prices, a convenient, attractive restaurant, educational facilities and good-fellowship among the workers have lowered the wandering tendency of the average rubber-mill operative to a monthly turnover of 240 men less than that of the average rubber company. Bowling alleys, pool tables, the cigar and confectionery counter and lectures and entertainments on the stage of the restaurant-auditorium are also inducements. While the enterprise is not self-sustaining and costs the company about \$55 a day, at least \$172,800 a year is saved, computing the cost of the average turnover at a minimum of \$60 and a maximum of \$90. About 2,400 men employed by the company enjoy the privileges of this institution.



LARGEST DINING ROOM IN THE REPUBLIC CLUBHOUSE, SEATING 350 PERSONS.

NEW INCORPORATIONS.

American Racing Tread Co. of Omaha, The, September 8 (Nebraska), \$25,000. T. H. Cooper, W. A. Eddy and C. J. McDonald. To manufacture automobile, motorcycle and bicycle tires.

Anderson Raincoat Co., The, October 2 (New Jersey), \$100,000. L. P. Randall, U. G. King and L. W. King—all of Trenton, New Jersey. Principal office, New York avenue and Spruce street, Trenton, New Jersey. Manufacture, purchase and sell rubber coats, boots and shoes and all goods of which rubber is a component part.

Armstrong Rubber Co., Inc., September 20 (New York), \$35,000. S. X. Newman, 453 Seneca Parkway, A. L. Gilman and R. C. Schaefer—both of 1232 Granite building—all of Rochester, New York. Principal office, Rochester, New York. Manufacture tires.

Bargain Tire Co., Inc., September 22 (New York), \$1,000. F. J. Brown, J. Brown and E. L. Brown—all of 200 West One Hundred and Eleventh street, New York City. Tire repairs, etc.

Blacklock-Posner Tire Co., Inc., August 28 (New York), \$15,000. S. Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street—both of Brooklyn, New York. Manufacture tires, etc.

L. Burger, Inc., October 18 (New York), \$30,000. L. Burger, 138 Crary avenue, Mount Vernon, New York; L. T. Lichtman, 342 Eighth avenue, and M. Lerner, 75 Spring street—both of New York City. To manufacture garters and arm bands.

Colorado Tire & Rubber Co. Inc., October 5 (New York), \$1,000. S. Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street—both of Brooklyn, New York.

Dorrite Insulation Co., Inc., October 3 (New York), \$200,000. H. A. Dorr, 162 West Thirty-fourth street; C. O. Hall, 147 West Thirty-fifth street, and R. D. Adams, 176 Broadway—all of New York City. To manufacture insulating materials.

Glick & Levy, Inc., October 18 (New York), \$60,000. S. J.

Glick, T. J. Glick—both of 3675 Broadway, New York City—and J. W. Levy, 446 Knickerbocker avenue, Brooklyn, New York. Deal in rubber boots, shoes, etc.

Lehigh Rubber Co., Inc., August 23 (New York), \$500. W. W. MacNeil, 243 West Fifty-fifth street; B. E. Elliott, 1400

Broadway—both of New York City, and P. H. Bradley, 2733 Broadway, Pittsburgh, Pennsylvania. To manufacture tires, etc.

Novelty Rubber Co., Inc., The, October 17 (New York), \$4,000. I. H. Welat, 72 Graham avenue; M. Stein, 239 Hart street—both of Brooklyn, New York—

and J. Halperin, 220 Eldridge street, New York City. Principal office, Brooklyn, New York. Manufacture rubber goods.

Pilot Tire & Rubber Co., Inc., October 15 (New York), \$50,000. J. M. Johnson, F. E. Brown and A. L. Dunton, all of Rochester, New York. To manufacture tires, etc.

Plexus Tire & Rubber Co., February 13 (Pennsylvania), \$50,000. President, J. Scott; vice-president, J. H. Scott; treasurer, W. M. Moore; secretary, G. M. Righter. To manufacture, purchase and sell rubber goods, automobile tires, tubes, accessories, or any other articles of a similar character.

Quality Tire Shop, September 24 (Delaware), \$25,000. P. Craig, M. Robinson and H. L. Maris—all of the Denckla building, Philadelphia, Pennsylvania. Principal office within the State of Delaware is with A. A. Watson, 106 Lookerman street, Dover. Manufacture and deal in automobile tires.

Republic Rubber Corp., The, October 6 (New York), \$11,250,000. F. D. Lyon, 208 West Eighty-fifth street; W. F. Cranz, 65 West Fifty-fourth street, both of New York City, and H. J. Esselmont, Montclair, New Jersey. To manufacture rubber goods.

Security Tire & Manufacturing Co., September 18 (Delaware), \$2,000,000. M. H. Morris, A. M. Halloran and S. A. Williams—all of Wilmington, Delaware. Principal office within the State of Delaware is with the Colonial Charter Co., 927 Market street, Wilmington. Authorized to acquire patents for the manufacturing of goods pertaining to rubber, rubber goods, tires for wheels for automobiles, etc.

Standard Tire Valve Co., Inc., October 13 (New York), \$50,000. G. M. S. Armstrong, 500 Fifth avenue; F. Groat, 207 Broadway, and S. Sladden, 233 Broadway, all of New York City. To manufacture valves, etc.

Wholesale Tire & Supply Co., September 15 (California), \$25,000. Directors, J. C. Kavanagh, 337 South Serrane street; E. Heizman, 1012 West Fourth street, and G. W. Miller, 950 Park View—all of Los Angeles, California. Principal office, Los Angeles, California.

Yardville Rubber Specialty Co., October 17 (New Jersey), \$10,000. H. Johnson, Yardville; S. Berman and S. J. Lewis—both of Trenton—all in New Jersey. Principal office within this state is at 36 East State street, Trenton. Manufacture, purchase and sell rubber goods of all kinds and nature, of which rubber is a component part, and the various materials entering into the manufacture of any and all such goods, etc.

TRADE NOTES.

The New York branch of The Amazon Rubber Co., Akron, Ohio, has been moved to Sherman Square, Broadway and Seventieth street. Owen Moynihan, eastern district manager of the company, is in charge of this office.

The Ardmore-Akron Tire & Rubber Co., Oklahoma City, Oklahoma, whose incorporation was mentioned in the May issue of THE INDIA RUBBER WORLD, expects to have its new plant in operation by January 1. The building will have a floor space of 27,000 square feet and a capacity of 500 tires and tubes per day, the output to be eventually doubled. I. M. Putnam is directing the work.

The Carlisle Cord Tire Co., New York City, has recently started deliveries from its factory at Andover, Massachusetts. The first delivery took place three months after the organization of the company, as a result of tire tests covering a period of several years.

The Federal Rubber Co., Cudahy, Wisconsin, has set aside a block of its second preferred stock, a dividend bearing issue, for those of its employees who occupy responsible positions and have been long in the company's service.

The Globe Tire Co., Laporte, Indiana, has been reorganized and in future will be known as the Johnstone Tire & Rubber Co., with headquarters at 52 West Chippewa street, Buffalo, New York, under the management of Samuel Johnstone. The factory of the company is at Laporte, Indiana.

The Consumers Service Tire & Equipment Co., Fulton, Illinois, which was incorporated on November 21, 1916, mention being made in THE INDIA RUBBER WORLD, has changed its name to the Lincoln Highway Tire Co.

Owing to increased business, The Pharis Tire & Rubber Co., Newark, Ohio, is enlarging its plant, which will have a capacity of about 600 tires and 1,000 inner tubes per day.

The Ajax Rubber Co., Trenton, New Jersey, is to erect an addition to its plant on Brenning avenue. The structure will be a one-story building of brick and reinforced concrete.

The Dayton Rubber Manufacturing Co., of Dayton, Ohio, has opened a New York branch at Broadway and Fifty-seventh street, having leased the store and basement on the northeast corner.

The Dayton Tire Co., Copley Square, Boston, Massachusetts, is soon to occupy a new building at 700 Beacon street, being obliged to seek larger quarters on account of increased business.

The Delion Tire & Rubber Co., Trenton, New Jersey, is erecting three additions to its plant on Whitehead road, at an approximate cost of \$85,000. The buildings will be one and two-story structures, 50 by 75 feet, 50 by 120 feet and 25 by 75 feet, respectively. They are to be ready for occupancy by February 1, 1918.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has appointed Rodney W. Day manager of its branch at Erie, Pennsylvania. Mr. Day was formerly connected with the Buffalo, New York, branch. On October 5 representatives of the company held a banquet at the Baltimore Hotel, Kansas City, Missouri, speeches being made by a number of those present.

The Keystone Tire & Rubber Co., New York City, reports for the year ended June 30 gross sales amounting to \$2,751,269, and net profits of \$594,020.

The New York branch of The Lee Tire & Rubber Co., Conshohocken, Pennsylvania, will change its name from The Lee Tire Sales Co., Inc., to the Lee Tire & Rubber Co., of New York, Inc., in order to be more closely identified with the parent company. The company's sales offices are now at 236 West Fifty-fourth street, New York City. Another branch has recently been opened in Chicago, G. H. Wright being in charge.

The Globe Rubber Tire Manufacturing Co., Trenton, New Jersey, has recently opened a Philadelphia branch at 864 North Broad street. William R. Barnes, the well known Philadelphia tire man, is in charge of this branch.

About 70 truck and tire salesmen of the United States Rubber Co. recently met in Providence, Rhode Island. C. J. Welch, sales manager, was in charge of the convention and banquet that were held at the Crown Hotel.

The Security Tire & Rubber Co., Cleveland, Ohio, will build a plant at Wellington, Ohio. The company is capitalized for \$1,000,000 and manufactures a tire that does not require inflation.

The Standard Tire & Rubber Co., Detroit, Michigan, has opened a branch at Kansas City, Missouri, the building being a two-story structure at 104 Grand avenue.

The Perfection Tire & Rubber Co., Chicago, Illinois, will build two additions to its plant at Galesburg, Illinois—one a three-story structure, 250 by 60 feet, semi-fireproof and of steel and brick construction; the other, 100 by 60 feet, and of similar construction, to be used for office purposes. Work on a third structure, a 100 by 50 foot one-story calender and mill room, is now nearing completion.

Owing to increased business, the Michelin Tire Co., Milltown, New Jersey, has opened new headquarters at 245 West Fifty-fifth street, New York City.

The Hartford Tire Co., Inc., New York City, has moved from 149 West Fifty-first street to larger quarters at 238 West Fifty-sixth street. The new store has 3,000 square feet of floor space.

The B. F. Goodrich Co., Akron, Ohio, has made the following new appointments: E. M. Whiting has been placed in charge of the department at Rochester, New York, and C. E. Boutelle appointed local manager at the Birmingham, Alabama, depot, replacing J. T. Kemp, who has been made a special truck tire representative.

The Tacoma Tire Service System, of Tacoma, Washington, has established a branch on Broadway, New York City.

The Empire Rubber & Tire Co., Trenton, New Jersey, is building a one-story addition to its plant, approximately 90 by 320 feet, to cost \$40,000.

The New Idea Double Tire Co., Syracuse, New York, has increased its capital from \$5,000 to \$75,000.

The Hewitt Rubber Co., Buffalo, New York, will build a new plant at Youngstown, Ohio, for the production of tires and tubes. The plant will have an ultimate capacity of 4,000 tires and tubes daily, and work on the buildings is to begin some time this fall. J. H. Kelly, former sales manager of the Republic Rubber Co., Youngstown, Ohio, is vice-president and general manager of the company.

The Century-Plainfield Tire & Rubber Co., Plainfield, New Jersey, incorporation of which was published in THE INDIA RUBBER WORLD, September 1, 1917, conducts the tire manufacturing and selling business of the Rubber Insulated Metals Corp., Plainfield, New Jersey.

The Lee Tire & Rubber Co., Conshohocken, Pennsylvania, has opened a new branch at 110 Boylston street, Boston, Massachusetts, with O. S. Johnson in charge.

Iowa City, Iowa, is to have a new tire factory, to be known as the Iowa City Tire & Tube Co. The management includes a number of men prominent locally. W. H. Brooks of Youngstown, Ohio, who has had 20 years experience in tire manufacture, will be superintendent.

At a meeting of the directors of the Portage Rubber Co., held in Cleveland, Ohio, on October 5, a resolution was passed calling a special meeting of stockholders November 20, to increase the authorized capitalization to \$10,000,000, half common and half preferred stocks, to provide for the future growth of the business. The directors passed a resolution to pay the holders

of common the regular 3 per cent quarterly dividend November 15, on stock of record November 5, and a regular quarterly dividend of 1½ per cent on the preferred stock January 1, on stock of record December 20.

At a recent meeting of the stockholders' committee of the Dry Climate Tire Co., the appointment of three trustees to hold all stock in reserve and vote upon it at option was resolved upon. Among other measures, it was provided that no stockholder should dispose of his holdings without the knowledge and consent of the trustees.

The Rotary Tire & Rubber Co. of Zanesville, Ohio, will manufacture tires and rubber heels and possibly composition soles. Mark Platnick, secretary, and W. F. Hendrick, superintendent, are both of St. Louis. It is proposed to employ 100 people.

THE KELLY-SPRINGFIELD TIRE CO.

The New York offices of the Kelly-Springfield Tire Co. have been moved to new and more commodious quarters at the southwest corner of Seventh avenue and Fifty-seventh street.



KELLY-SPRINGFIELD TIRE Co.'s NEW YORK OFFICE.

Here the new branch offices and the general offices of the company will be provided with ample accommodations, made necessary by the increasing business of this company. The products of the company will be displayed in a large and well-appointed showroom, to which the public will be cordially invited.

The September earnings of the company were the largest in any month of its history. For the fiscal year ended December 31, 1916, the company earned approximately \$10 a share for its 4,907,200 common stock, compared with \$7.50 in 1915. Dividends are being paid on the junior issues at the rate of \$4 a year, which means that earnings in the current 12 months, after liberal allowance for war taxes and depreciation, will show a minimum of 2½ times dividend on the common stock, and allowing the usual dividend on the preferred stock and the regular \$4 a share on the common, the company will put away a surplus this year of at least \$1,500,000.

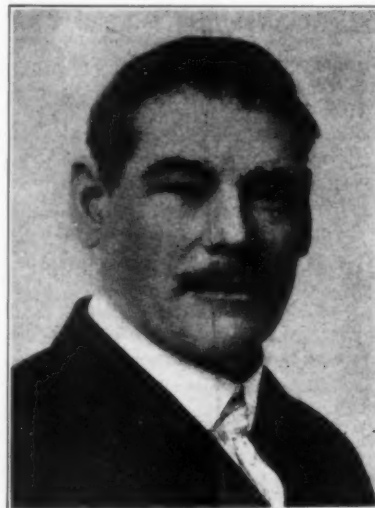
The announcement that a cord tire is to be added to the Kelly-Springfield line of tires was made at a conference recently held by the branch managers of that company. Other new acquisitions to the Kelly-Springfield line are 32 x 3½ and 34 x 3½ inch special tires intended for use on trailers. The company announced an advance of 10 per cent in the price of tires on October 15.

The cost of the new plant at Cumberland, Maryland, will be \$5,000,000 and have a capacity of from 4,000 to 5,000 tires per day, with an annual capacity of 400,000 tons of automobile supplies. Work is soon to be commenced on a number of the smaller buildings, but the main structure, 900 by 700 feet, will not be started until next May. The plant will occupy 75 acres, 3,000 men being employed the first year and 5,000 the second, this number to be increased later to 10,000. Land improvements are also planned, to include the erection of a complete industrial city with modern dwellings.

THE FOUNDER OF THE SAVAGE TIRE CO.

ARTHUR W. SAVAGE, founder of the great company in San Diego, California, that bears his name, was born in England in 1857. His education began in Britain and was continued in Baltimore, Maryland.

Before declaring allegiance to Uncle Sam he traveled extensively in quest of business adventure. In the West Indies he was a coffee planter. In Australia he became a cattleman. While at the antipodes he helped organize cavalry during the trouble then pending between France and England over New Caledonia. This task completed, he came to settle in the United States.



ARTHUR W. SAVAGE.

He managed the railroad that ran from Rome to Schenectady, now a part of the New York Central system, and he built the Saratoga Electric roads. Later he established the Savage Arms Company in Utica, New York, and built up one of the greatest firearms enterprises in the country. The first hammerless repeating rifle and the first sporting smokeless cartridges were his inventions. He also invented the Savage Dirigible Torpedo which was used by Brazil in its war of rebellion. The present widely used method of drying wool, and machines for the decortication of fiber, were devised by him. The Savage Steel Penumatic Tire and the process of making the Grafinit inner tubes are among his contributions to the rubber industry.

His latest industrial endeavor is the A. J. Savage Munitions Co., for which a large plant will be erected in San Diego.

Painting in oils, flower raising and golf are subsidiary occupations of this energetic and successful Eastern-Western American.

DAVID C. SPRAKER RESIGNS.

David C. Spraker, president of the Kokomo Rubber Co., Kokomo, Indiana, has resigned, and is succeeded by A. V. Conradt. D. L. Spraker will continue as general manager. David C. Spraker organized this company 22 years ago and, as its president and general manager, started and continued its success to the present day. He expects to leave shortly for California, where he has important interests.

AKRON-BOSTON EXPRESS USES CORD TIRES.

The transportation service inaugurated between Akron and Boston by the Goodyear Tire & Rubber Co. with a 5-ton truck, hauling tires to the company's eastern branches and returning with tire fabric from the Goodyear mills at Goodyear, Connecticut, has now grown into a fleet of five trucks, plying regularly between the two cities, observing a seven-day schedule for the round trip of 1,500 miles. On the 3-ton trucks the tire sizes are 38 x 7 front and 44 x 10 rear, while the 5-ton freighters use 40 x 8 front and 48 x 12 rear. These are of the same design as the regular cord tires except that they contain more plies of cords and increased amounts of rubber.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE Mason Tire & Rubber Co., Kent, Ohio, on October 11 and 12 held a general sales convention, including the entire sales force and more than forty branch managers. The principal event was a banquet tendered the visiting salesmen on the evening of October 11, when 45 guests were present and speeches were made by a number of men prominent in the tire industry, John H. Diehl, sales manager, being toastmaster.

The company is erecting new buildings, to be completed within the next three months. This will double the capacity of its



MASON TIRE & RUBBER CO., KENT, OHIO.

plant, which will have a production of 1,500 tires per day and will employ 500 operatives exclusive of the office force. The buildings will be completed by January 1 and are to have a floor space of 84 by 169 feet.

* * *

The following information relating to Akron's rubber industry, particularly tires, is from the News Bureau of The B. F. Goodrich Co.:

"Every time a tire blows out Akron grows, and the rate of this growth can best be realized when it is taken into consideration that 20,000,000 auto tires are running over all kinds of roads in the United States every day. That is one reason why Akron never knows hard times, even in war times. No matter what happens, the motorist is loath to give up his car. Panics, bank failures, war—it's just the same.

"Factory figures show that over 70,000 tires are shipped out of Akron every day, nearly three-fourths of the entire number manufactured in the United States. Over 60,000 workers are employed in the great rubber factories here, most of them engaged in some way in turning out tires for motorists, motor cyclists, bicyclists and aviators.

"In ten years the growth of the tire industry has transformed Akron from a town of 65,000 into a city of 157,812 inhabitants and many workers have been turned away because it has been impossible until recently to find houses or rooms for their accommodation, as the building of homes has not kept pace with the growth of the tire factories.

"In 46 years the rubber business, of which the tire industry

is the chief part, has changed the entire industrial complexion of the city, there now being twenty-one factories, which turn out from 100 to 25,000 tires a day.

"An idea of the size of the industry can be gained from a description of The B. F. Goodrich Co., one of the largest of the group. This plant, which is shown in the accompanying illustration, consists of 63 buildings in one group, in which are employed over 21,000 persons. It is nearly four miles round the confines of the plant. Over 250 lines of rubber goods are manufactured."

* * *

After an exhaustive three days' search, the escaped military kite

balloon belonging to the Goodyear Tire & Rubber Company, 80 feet long and 22 feet in diameter, has at last been located and returned to the Goodyear aeronautical field. The Goodyear kite balloons are equipped with a rip-panel, a narrow strip of balloon fabric, which balloonists open only in emergen-

cies to make quick landings. It is thought that the rope connecting this strip of fabric with the basket caught on the limb of a tree, pulling the rip-panel open and bringing the balloon to earth. Upon examination it was found to be unharmed, and a few hours after its return was again sent up into the air.

Employees of the Goodyear company have started a fund to buy "smokes" for the Sammies in France. By a special arrangement, the money is to be sent to a tobacco company, which in turn will see that the soldiers get the "smokes."

* * *

The directors of the Goodrich company have announced the issue of 15,000,000 two-year 6 per cent notes to provide for largely increased sales and the carrying of heavy stocks of crude rubber made necessary by uncertain shipping from the Far East. There will be no public offerings as the entire issue has been taken by



THE B. F. GOODRICH CO., AKRON, OHIO.

several New York banks. Earnings of the company for the year, after the deduction of all expenses and the war tax, are estimated at \$7,200,000, or \$12 a share for the common stock, compared with \$7,657,000 in 1916, \$10,317,000 in 1915, \$3,371,000 in 1914 and \$668,164 in 1913.

* * *

The Northeastern Ohio Rubber Shippers' Association is an organization of rubber manufacturers in and around Akron, R. G. Kreidler being chairman of the Executive Committee. The

Association is organized for the purpose of taking united action on any rate adjustments that may be proposed, either by the shippers or the carriers.

The Avalon Tire & Rubber Co., whose incorporation was mentioned in the September issue of *The India Rubber World*, has purchased a ten-acre plot, for the erection of a concrete building, 50 by 150 feet.

The Akron Biltwell Tire & Rubber Co. has purchased 12½ acres of land on the Belt Line Railway, south of Akron, and work on the company's new factory is now in progress. The building, a three-story structure of reinforced steel and concrete, is to be 60 by 300 feet and will have a capacity of 500 tires per day.

This company was incorporated December 23, 1916, with a capital stock of \$200,000. The officers are: M. Braley, president and general manager; W. M. Graham, vice president; and J. F. Risch, secretary and treasurer. J. P. Reger and J. B. Pergrin are directors.

F. A. Seiberling, president of the Goodyear Tire & Rubber Co., has given \$75,000 to Heidelberg University, Tiffin, Ohio, for the establishment of a men's gymnasium. Permits were recently issued to Mr. Seiberling for the erection of 14 new houses on Goodyear Heights in this city.

Ted Nicar, the new sales manager of the Firestone Tire & Rubber Co.'s boot and shoe department, was formerly with the La Crosse Rubber Mills Co., of La Crosse, Wisconsin.

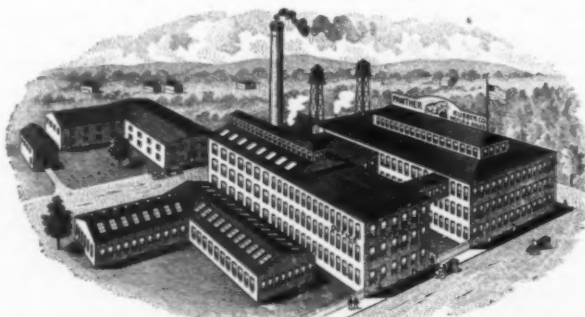
THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

THE manufacturers of rubber goods in practically every line are being handicapped by the scarcity of experienced workmen and workwomen. This is especially the case in the garment and footwear trades, which without exception have more business on their books than they have workers to manufacture. Those concerns which have contracts for government supplies are, as a rule, giving them the preference, and this patriotism is resulting in serious delays in deliveries of goods to the regular customers. While this might be remedied later when the government orders are filled, it has been found in several cases that still further supplies are ordered by the government agents, with the result of further delaying the production and delivery of civilian orders. As a consequence, retailers of these goods, whose orders remain unfilled, are being greatly incommoded, and in some cases are losing trade through inability to keep their stocks complete.

The extensive plant of the Panther Rubber Manufacturing Co., at Stoughton, this state, was entirely destroyed by fire on September 8. This plant was originally that of the Plymouth Rubber Co., and was acquired by the Panther company about five years ago. It consisted of five buildings. Two were of brick construction and one of these was only finished and occupied in June. The other brick building had been in use about three years. Three wooden buildings comprised the rest of the plant, and all were destroyed. The blaze started in the largest of the wooden buildings, shown at the right in the picture, which was used for storage and receiving purposes, early in the morning previous to the regular working hours. The whole plant, including machinery, was estimated to be worth about \$250,000, and at the time of the fire the stock of raw materials and manufactured goods was between \$100,000 and \$150,000.

This plant was devoted mainly to the manufacture of rubber heels, rubber and fiber soles, mechanical and molded goods. The company has a factory at Chelsea, this state, which has been used exclusively for the production of rubber-coated duck for "Gem" inner soling in shoe manufacture, and this factory is be-



STOUGHTON FACTORY.

PLANT OF PLYMOUTH RUBBER CO., STOUGHTON, MASSACHUSETTS.

ing rapidly equipped with the necessary machinery for the early filling of orders on hand for goods previously manufactured at the Stoughton factory.

The officers of the company have not yet fully decided as to their future plans. Endeavors are being made to induce the company to rebuild at Stoughton.

The Globe Rubber Tire Manufacturing Co., of Trenton, New Jersey, has opened a handsome agency at 679 Beacon street, in charge of S. L. Blood, New England manager. Mr. Blood is a veteran in the tire business, having learned the mechanical and business end of the trade at the Fisk factory in Chicopee Falls, Massachusetts, and afterwards becoming local representative for the Fisk Rubber Co. at Minneapolis, Minnesota. Seven years ago he instituted the Boston agency of the Ajax Rubber Co., Inc., of New York City, and has most successfully managed it until his recent resignation, to assume this connection with the Globe company. The new headquarters, formerly an automobile showroom, have been entirely renovated and rearranged, and are admirably adapted to its new purposes.

Fred H. Learned, for 18 years New England salesman for the Revere Rubber Co., Boston, has resigned to associate himself in a similar capacity with Stowe & Woodward Co., Newton Lower Falls, manufacturers of rubber-covered rolls and mechanical goods.

The baseball club of the B. F. Goodrich Co., Akron, Ohio, came East to play a series of games with the "Red Tops" of the Fisk Rubber Co., Chicopee Falls, Massachusetts, which resulted in favor of the Fisk company. At the game, which was played upon the athletic field of the Fisk company, a collection was taken for the benefit of the Springfield Union tobacco fund for the American soldier boys in France, and this totaled more than \$100.

The Apsley Rubber Co., Hudson, Massachusetts, recently brought out an army officer's raincoat and military cape, each made of fine wool of khaki color from special patterns and finely finished. Both are meeting with a very good demand and selling quite freely.

"Rubber Machinery," Mr. Pearson's newest book, filled with valuable information for rubber manufacturers, is now ready for mailing. Price, \$6.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE rubber industry of Rhode Island continues its record breaking career with no indications of any immediate cessation. In fact, nearly every plant in the State, in addition to running to full capacity with day and night shifts, is far behind on orders and more are being added every day. This condition pertains not only to special war and government orders, but to regular production as well.

As to the help proposition, never in the history of the industry in Rhode Island was there such a demand for labor and never was there such a shortage, both of skilled and unskilled labor, notwithstanding that never was the scale of wages as high as at present. Every manager and superintendent reports and has reported for a number of months, the almost utter impossibility of securing additional help. While the wage schedule has been high for several months past, with bonuses added to the regular card, the month of October witnessed the putting into effect of a new schedule, in addition to making as a part of the regular wage the 10 per cent bonus that has been in effect since November of last year. Upwards of 7,500 employees of rubber concerns throughout the State are affected by this new wage schedule. To meet the increasing demand for its product, the National India Rubber Co., Bristol, will erect a new mill, to be located east of the present shoe making room and connected with the main building. The new structure will be three stories and basement, of brick and mill construction, 202 feet long by 60 feet wide.

* * *

Albert Boudreau, formerly a foreman for the Woonsocket Rubber Co. in the Alice mill at Woonsocket, is being held by the Federal authorities as a "slacker" for refusing to register in violation of the Selective Army Draft Act. He was discharged by the company last June, when he refused to register, but he was not arrested until recently and is now awaiting trial. He claims that his reason for refusing to comply with the law is because he is a Socialist and a "conscientious objector."

William Brawley, for the past two years chemical expert at the Alice mill of the Woonsocket Rubber Co., at Woonsocket, resigned from that concern early the past month to accept a position with the Goodrich Rubber Co., at Akron, Ohio. Before concluding his duties he was surrounded by his associates and many friends, who made him the recipient of a number of valuable and useful gifts.

David Britt, John McManus and Arthur Anderson, for many years employees at the Millville plant of the Woonsocket Rubber Co., at Millville, have been recommended by the management of the corporation as capable aspirants for government positions as inspectors of rubber boots on their arrival in France. The three young men are among those who have been accepted for service in the newly drafted National army.

* * *

The Narragansett Cotton Mills, Inc., recently incorporated under the laws of Rhode Island, has acquired a tract of land in Apponaug, where it will erect a plant for the exclusive manufacture of cotton fabrics that are used for automobile tires. It is understood that the concern will apply to the Town Council for a ten years' exemption from taxes under the provisions of the vote of the taxpayers in a financial town meeting. Building operations will be commenced as soon as the matter has been satisfactorily adjusted with the Town Council. The site is admirably located for transportation facilities and the plant at first will afford employment for about 200 persons.

* * *

The Mechanical Fabric Co. has had plans completed and the contract awarded for the building of an additional story to its

plant at Sprague street, this city. This will give the structure four stories instead of three, as at present.

* * *

Evidences of the increasing business of the Revere Rubber Co. are to be seen at the plant on Valley street, Providence, where several new buildings are in process of erection or alteration and a number of changes under way.

GREAT BRITAIN'S RUBBER GOODS TRADE WITH UNITED STATES.

THE official figures of British overseas trade in 1916 that have just been published show that the United States has supplied England with motor tires and tubes to the value of £1,400,911. That this business is directly due to the war is clearly shown by the comparatively small imports of tires from the United States in 1914, which were valued at £270,550. France, it appears, comes next in the list with exports of tires and tubes to England, valued at £1,330,037 for 1916, which also shows a decided increase over 1914 when £331,070 was the value of the amount exported. The amount supplied by Italy was valued at £453,625; Switzerland, £63,967, and other foreign countries, £19,220, bringing the total of England's 1916 imports of tires and tubes to £2,070,760, compared to £1,888,054 in 1914.

The United States does not appear to have any trade worthy of mention with England in motorcycle and bicycle tires and tubes, due no doubt to the fact that her war requirements in this respect were small compared to those of motor tires and tubes.

Imports of other tires and tubes show a falling off in 1916, when a total of £10,040 value was imported from foreign sources compared to £11,944 in 1914, of which the United States supplied £9,422 value in 1916, compared to £11,889 value, in 1914.

England does not find it necessary to buy engine and boiler packing outside of her domain. The fact is, she makes more than enough for her own requirements and, in 1916, exported goods of this type, to the value of £242,914, to foreign countries, including £24,084 value to the United States. In 1914, England's foreign exports of packing were £125,594, of which the United States received £18,548.

Foreign imports of miscellaneous rubber goods have largely increased in 1916, due to the stress of war, and of the total value, £962,967, the United States supplied by far the largest amount, which was £890,657. In 1914, a total of £632,460 in value was imported, in which the United States was interested to the extent of £221,641. In 1916, England exported to this country miscellaneous rubber goods to the amount of £36,532, compared to £45,041 in 1914.

Imports of waste and reclaimed rubber from foreign countries have increased from 3,575,800 pounds, value £87,158 in 1915, to £4,043,400 pounds, value £110,224 in 1916, of which amounts the United States supplied 2,918,800 pounds, value £72,529 in 1915, and 3,161,700 pounds, value £86,326 in 1916. England's exports of waste and reclaimed rubber to the United States for 1916 were 9,923,300 pounds, value £159,520, compared to 3,824,800 pounds, value £65,333 for 1915.

"ANDALUSIA" RUBBER ARRIVALS DELAYED.

It was announced to the trade more than two months ago that the steamship *Andalusia*, a former German boat, would probably sail from Manila in September or early in October, bringing considerable rubber from Singapore and other eastern ports, but her sailing has been delayed. Frank Waterhouse & Co. stated, October 9, that the *Andalusia* would probably sail late in October, direct for Seattle, in which event it would load no rubber nor other cargo at Singapore. However, the former German steamer *Sachsen*, rechristened *Catagoochee*, and loading at Singapore, was expected to sail that day and would carry a large part of the rubber bookings made for the *Andalusia*.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

[333.] Names of concerns manufacturing aluminum and steel inner tube poles are requested.

[334.] A correspondent is in the market for a tube skiving machine.

[335.] An inquiry has been received for names of firms supplying "Edible Stearine."

[336.] The name of the manufacturer of "Atmoid" has been requested.

[337.] An inquirer desires to secure a small cutting machine for cutting rubber strips.

[338.] A specific gravity apparatus for rubber testing is desired by a correspondent.

[339.] Names of manufacturers of dry sifting machines are requested.

[340.] A contract for making a branded tire may be secured by a reliable tire manufacturer.

[341.] The address of a firm dealing in seconds or partly damaged tire accessories is requested.

[342.] A correspondent desires to know the best way to clean molds.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Reserved addresses may be obtained from the Bureau and its district and cooperative offices. Request for each opportunity should be on a separate sheet, and state opportunity number.

[25,437.] A company in British East Africa wishes to purchase bicycle tires, 28 by 1½ inches, with tubes, tin plate cups and tapping knives.

[25,441.] A man in Spain desires an agency for the sale of suspenders.

[25,445.] A company in Italy wishes to purchase fountain pens.

[25,475.] A firm in Zanzibar is in the market for fountain pens and garters.

[25,521.] A firm in British East Africa is in the market for suspenders.

[25,527.] A company in India desires to purchase rubber tubes, sheets, asbestos packing and sheets and wire protected hose.

[25,528.] A man in Portugal wishes to buy automobile accessories.

[25,529.] An agency is desired in Spain for the sale of rubber goods, elastic goods, mackintoshes, rubber corks and pneumatic tires.

[25,540.] A representative of a firm in Ecuador, who will be in the United States, desires to purchase or secure agencies for the sale of automobile supplies.

[25,547.] A merchant in India desires to purchase automobile and bicycle tires.

[25,550.] A wholesale dealer in Italy desires to purchase or secure an agency for all kinds of rubber surgical supplies.

[25,552.] A company in Portugal desires an agency for the sale of sulphur and general chemicals.

[25,555.] A firm in India wishes to communicate with American manufacturers and exporters of beltings.

[25,564.] An agency is desired in France for the sale of automobile accessories.

[25,594.] A firm in British East Africa is in the market for tinned metal latex cups.

[25,595.] A company in South Africa is in the market for imitation leather for upholstery.

BRITISH TRADE NOTES.

GOVERNMENT and private orders have been so extremely large that there is a regular boom in the rubber trade in England, and manufacturers scarcely know where to begin first.

There has been a tremendous order for government ground sheet capes, which are being produced at an incredibly rapid rate. These are now turned out in both 42 and 63-inch goods. Tenders for single texture waterproof capes for postoffice girls and for jerkins are also out. The jerkins, worn by certain British troops, were formerly made of leather, but owing to the scarcity of this material will now be produced in rubberized cloth, probably double-texture stout twill. This new government order is said to be for truly enormous quantities.

The Admiralty has been buying a fair amount of oilskins and swimming bladders, while for various kinds of goods, like valises, kit bags, trench boots, trench waders, all for war purposes, the demand has been extraordinarily brisk.

A new item for the front is catapult rubber. It appears that with catapults, soldiers in the trenches kill rats, birds and even small game.

Soldiers on leave gratefully declare that the rubber cushions inside their steel helmets have saved hundreds of lives by absorbing the shock of bullets and shrapnel.

An increasing demand for gas bags has been created, and it is said that the government has also bought these. From various quarters the opinion is heard that the use of coal-gas for driving automobiles will be permanent and that the manufacture of gas bags will continue.

* * *

The prohibition of imports of rubber operating gloves by the British Government has led to a shortage that is raising a good deal of comment, considering the great need of large supplies of gloves under present circumstances. Although a certain amount is manufactured locally, it appears that the quality is inferior to that of goods from the United States or Canada. Some dealers, however, claim that the British product is quite satisfactory both as regards quality and quantity. But the fact remains that there is a serious shortage of the article and that the matter has been placed before the government. It is hoped that the importation of rubber gloves in sufficient quantities will be allowed without the necessity of first obtaining licenses.

* * *

The partnership of Hendrey & Puckle, crude rubber brokers, 9 Mincing Lane, London, E. C. 3, has been dissolved by mutual consent. Mr. Puckle retires from business and Mr. Hendrey becomes director of Edward Till & Co., Limited, crude rubber importers, 21 Mincing Lane, London, E. C. 3.

* * *

Over 50 per cent of the Dunlop Rubber Co.'s staff in Dublin has joined the forces. A recent published casualty list contains the name of Lieut. R. V. Drough, an old employe, whose name figures among the posthumous recipients of the Military Cross.

RUBBER FACTORY AT JOHANNESBURG, SOUTH AFRICA.

A significant result of the war is that countries are learning to utilize to the utmost their own resources and to depend as little as possible on imports. Of this newly developing industrial independence, South Africa is a fair example. Before the war, practically every kind of manufactured goods was imported to a greater or lesser degree. Now factories are being erected and many new industries have been started. At Johannesburg, Transvaal, the manufacture of rubber goods has commenced; certain accessories, such as rolling rings, neck

rings and diaphragms, have been produced from raw rubber, and some of these articles are now in general use on the railways. Engine packings are also turned out and it seems that this branch will expand rapidly.

Asbestos is produced on an increasing scale; sulphate of ammonia, sulphuric acid and French chalk are locally manufactured and successfully used, while experiments are being conducted in the production of litharge.

NOTES ON THE GERMAN RUBBER INDUSTRY.

Compiled from British and European Press Despatches.

AS might have been expected, the government is making ever deepening incursions upon industrial freedom, and the rubber trade is no exception. Towards the end of 1915, the War Raw Material Department of the Prussian War Committee requested the Central Association of German Rubber Works to hold a meeting, and a war committee of the German rubber industry was appointed. Large and small factories, as well as representatives of rubber works in the German Confederacy, belong to this committee, so that the government is kept fully informed of all matters regarding the rubber trade. At the same time an organization for the protection of credit within the German rubber industry was formed, but not as a department of the Central Association; members were free to join or not, as they thought best.

The occurrence of cases of "cornering" large quantities of rubber goods gave the Bundesrat occasion to introduce so-called "equitable price limits"; that is, the purchase price plus the bare costs of selling, plus the exact amount of profit secured in the preceding year on similar goods. The Central Association protested against this measure of the military authorities.

Considerable discussion was caused by the prohibition to advertise certain sanitary articles and by the decree limiting the sale of rubber nipples to registered chemists. Against this, too, the association protested, but in vain.

In April, 1916, stocks of old and reclaimed rubber were commandeered and their price limits fixed. Cycling was prohibited and subsequently all tires from idle machines were seized. Before long practically all private automobiles, motorcycles and bicycles were requisitioned by the government.

The result of all these requisitions, restrictions and prohibitions is that the rubber trade is slower than it would have been, even considering the shortage of rubber. And this position is in no way improved by the irregular labor conditions prevailing. Every now and then, reservists are called to the front and huge gaps are formed in the ranks of workmen which are with great difficulty filled, as it is almost impossible to obtain men with the necessary experience.

Of course there was and is a certain amount of war work. But requirements are high and material and substitutes very short indeed. This condition is seriously felt in regard to tires, which must be forthcoming because of the importance of automobiles and bicycles in the war. Some tires are made of a substitute; others are solid, suspension of the cars being so improved as to make up for the loss of elastic material. Wooden wheels are coming to the fore as the carefully hoarded government stocks of rubber give out. It is, perhaps, due only to perfect reclamation of rubber that Germany has been able to get along without imports for so long.

Manufacturers of and traders in technical rubber goods for industrial purposes have come off best so far, although, naturally, scarcity of rubber limits their operations. The trade in surgical rubber goods suffers much from the many prohibitions; on the other hand, there have been and are plenty of government orders.

The rubber brought back on the "Deutschland" somewhat relieved the industry; the greater part of it served for war pur-

poses or was used in the manufacture of important surgical goods. In recognition of his bold act, the Central Union of German Rubber Manufacturers presented Captain König, commander of the "Deutschland," with a silver tea service and donated 10,000 marks to the pensions fund of the crew.

The necessity of resorting to all manner of substitutes and mixtures makes what business there is very uncertain. People do not take kindly to "War Qualities" and it requires time to get them accustomed to the new makes of rubber goods that are obviously inferior.

Synthetic rubber, replacing natural rubber, may still be termed a bright but distant vision. For some time, however, scientists have been experimenting with varieties of the *Euphorbia* which grow abundantly in central Europe. The plants are allowed to wither and then ground to a coarse powder which is extracted by benzine, ether or similar solvents. The extract obtained is dark green and has a strong smell. It contains about 1.56 per cent of mineral substance and 50 to 60 per cent of fat. When the substance is dissolved with an excess of alcohol a rubber-like material remains as sediment. The extract yields about 20 per cent of this rubber—if such it may be termed. It is estimated that about 43 kilos of rubber and 120 kilos of fat can be obtained from one hectare (2.47 acres) of the species *Tithymalus pepulus*—a common garden weed—and 50 kilos of rubber and 140 kilos of fat per hectare from the *Euphorbia cyparissios*.

There are plans for developing an industry out of this. Children are to collect the wild plants, which will be dried and then sent to laboratories to be treated. It is hoped to render the fat fit for human consumption or else to use it for soap or for the production of glycerine, while the yields of rubber are expected to eliminate dependence on foreign-grown rubber to a very great extent.

GERMANY'S RUBBER SUPPLIES.

A circumstance that has caused a good deal of surprise and conjecture in the rubber trade, has been the fact that Germany, to all appearances entirely cut off from rubber supplies, managed to get along for three years with the little stock she had. It was well-known that the rubber trade in Germany was shackled with restrictions and prohibitions, that various more or less ingenious substitutes were devised for rubber, and it was claimed that these helps, which alone could not have made up for the lack of stock, were reinforced by synthetic rubber and by a method of reclaiming rubber which German genius had discovered.

A warning to Canadian shippers, which was lately published in Montreal papers by Clarence I. de Sola, Belgian consul, seems to clear up the mystery.

According to him, German agents have been actively and successfully engaged in providing the fatherland with rubber via Holland. It appears that the agents had very cleverly misled Canadian exporters and made them the innocent purveyors to the enemy. From what can be gathered of the consul's utterances, a well constructed plot of rubber smuggling in a new guise seems to have finally been discovered.

GERMANY SEIZES SWEDISH MONEY IN RUBBER PLOT.

Swedish papers announce the startling fact that Germany has seized in German banks 6,000,000 kroner belonging to the Stockholm Handelsbank as the result of a rubber importation plot that failed.

It seems that the Stockholm Handelsbank, on behalf of a Christiania firm, placed 3,200,000 kroner on deposit in France early last year to pay for 400 tons of rubber to be shipped from Havre to Alexandrovsk, Russia. The French authorities learned of the German plot to capture the cargo at sea, and promptly commandeered both the goods and money involved. Thereupon the German interests concerned demanded repayment from the Handelsbank, and, being refused, seized its assets in Germany.

THE RUBBER TRADE IN JAPAN.

By a Special Correspondent.

THE Japanese rubber industry has developed considerably as a result of the war. The British prohibition of rubber imports, announced in May, decreased the Japanese production of tires, nipples and toys for England, but rubber balls, dolls and balloons are being exported to the United States, South America and other countries in greater quantities, also tires and insulated electric wires to China and other countries in Southern Asia and the South Sea. Not only the foreign demand but the home consumption has also increased and imports of rubber manufactures have correspondingly decreased. The decrease of crude rubber imports was due to British prohibition. A table of Japanese rubber imports and exports for the first six months of the present year as compared to the same period a year ago, follows:

Imports of Crude Rubber, January-June, 1917.

From—	1916.		1917.	
	Pounds.	Dollars.	Pounds.	Dollars.
British India	741,906	\$476,096	680,433	\$374,193
Straits Settlements	2,269,629	1,004,529	2,043,532	1,172,301
Dutch Indies	22,148	12,575	146,436	68,482
Great Britain	163,972	125,815	221,814	152,683
United States	53,909	44,198	57,877	40,658
Other countries	19,728	8,940	27,074	3,855
Totals	3,271,292	\$1,672,256	3,177,167	\$3,626,346

Imports of Rubber Manufactures, January-June, 1917.

	1916.		1917.	
	Pounds.	Value.	Pounds.	Value.
Unvulcanized and reclaimed rubber	86,028	\$10,938	81,864	\$13,984
Dental rubber	8,274	20,325	9,065	18,251
Soft rubber—				
Rods	46,742	21,984	58,649	28,682
Plates and sheets	116,892	39,582	69,028	26,933
Threads, rings, washers, etc.	25,188	35,298	26,372	33,458
Other goods	74,218	38,248	23,421	11,212
Goods, other	24,144	15,019	8,236	7,317
Waste rubber .....	.....	45,350	.....	26,099
Bicycle tires	2,098	2,039	4,139	5,228
Cables—				
Submarine .....	.....	.....	.....	110,883
Other	11,076	1,678	2,535	470
Other wire	35,604	17,821	4,985	1,663
Waterproof clothing	6,532	6,308	9,559	7,410
Webbing .....	.....	26,081	.....	20,833
Insulating tape	20,729	8,116	22,203	8,455
Woven belts and hose	9,369	10,779	5,721	4,587
Totals .....	.....	\$299,566	.....	\$325,865

Exports of Rubber Manufactures, January-June, 1917.

	1916.		1917.	
	Pounds.	Value.	Pounds.	Value.
Insulated wire	566,203	\$149,625	1,956,197	\$653,338
Rubber tires	1,566,105	1,655,218	1,619,287	1,163,990
Rubbery manufactures .....	.....	.....	131,989	.....
Totals .....	.....	\$1,804,843	.....	\$1,817,328

During the first six months of the present year 100 automobiles, value \$76,721, were imported, compared to 216, value \$197,613, imported during the same period last year. Bicycles to the number of 742, value \$21,742, were imported for the same period in 1917, compared to 408, value \$31,006, for the first half of 1916. For the period January-June, 1917, 2,891 bicycles, value \$43,303, and 4,512 jinrikishas, value \$86,117, were exported.

THE TIRE INDUSTRY.

At the end of 1916 the total number of automobiles in Japan was 1,656. Of these 841 were in Tokio, 178 in Yokohama, 112 in Osaka, 92 each in Kyoto and Kobe. From January to May, 1917, 231 new cars were added to the number in Tokio, and the total is expected to reach 1,500 in Tokio and 3,000 in Japan by the end of this year.

Automobile tires are being made to a limited extent by The Kakuichi Rubber Co., Osaka; The Toyo Rubber Co., Limited, Tokio; The Nihon Rubber Co., Limited, Tokio; The Meiji Rubber Works, Tokio; The Mitatsuchi Rubber Manufacturing Co., Tokio, and other Japanese companies, some of the product being exported last year. Most of the demand, however, is sup-

plied by The Dunlop Rubber Co., Far East, Limited, Kobe, the Tokio branch of The B. F. Goodrich Co., the agent of the Good-year Tire & Rubber Co., the Japanese branch of the Revere Rubber Co., and imported goods from France, Italy, etc.—Japanese tires thus far being considered less reliable than standard foreign makes. This is not the first experience the Japanese have had with foreign competition. Four or five years ago foreign countries also monopolized the bicycle tire business in Japan, as shown by the imports of bicycles and parts, which amounted to \$1,558,117 in 1912 and \$1,586,491 in 1913. In 1916, Japanese rubber manufacturers supplied pneumatic tires for 3,500,000 bicycles and 1,000,000 jinrikishas and moreover exported tires, bicycles and parts to the value of \$2,963,779, while the imports of bicycles and the parts decreased to \$249,267 in 1916. This indicates the probability that Japanese tire makers will be perfectly able in the near future to supply the tires needed for the gradually increasing number of automobiles.

SUBWAYS IN TOKIO.

When all plans are realized, Tokio will possess a very extensive subway system. Already five miles of underground railroad have been completed, and another seven miles will be constructed by the Ikegami Electric Railway Co. Besides this, a line is to be built along the River Edo, and there are definite plans for laying two more lines in different parts of the city.

IMPERIAL CONTROL OF FREIGHTS.

There is a report abroad from Tokio that an Imperial ordinance controlling charter rates and freight sales will be issued.

PURCHASE OF A RUBBER PLANTATION.

The rubber plantation Danau Salak, situated near the East coast of Borneo, and formerly the property of W. M. Ernst, Chr. Diemen and A. H. Dewald, has been sold to Japanese for the sum of \$120,000.

JAPAN'S SHIPPING.

One of the marvels in Japanese industrial progress is the recent development of her commercial fleet. In 1910 she possessed steamers and sailing vessels, representing, respectively, 1,224,091 and 390,796 tons. Not quite six years later, these figures had increased to 1,856,877 and 544,605 tons. In 1914, 650 new boats, including 85 steamships, put to sea. Her losses for the period of the war do not amount to more than 11,306 tons, while it appears that she captured three vessels of 9,428 tons.

This rapid growth, however, is in no inconsiderable measure due to financial aid from the government, and such shipping companies as the Tayo Kisen Kaisha, Osaka Shosen Kaisha, and Nippon Yusen Kaisha have received very substantial subsidies.

GUTTA PERCHA FROM THE SHEA BUTTER TREE.

According to the "Nigeria Gazette," a new trade has sprung up during the last two years in the Province of Bornu. It appears that a product, known as "gutta percha" is prepared from the latex of the shea butter tree and locally sold at 8 cents per pound.

This "gutta percha" is obtained by chipping small pieces of bark out of the tree with a narrow native axe. The latex slowly oozes from these cuts, is scraped off, and, to clear it of dirt, bark, etc., is boiled until these float to the top, when they are removed. The purified latex coagulates, and in this form is known locally as "gutta percha." It is not advisable to tap the trees of less girth than thirty inches.

The shea butter tree is abundant in many parts of the Northern Provinces, and is especially so in the Meko, Shaki and Oyo districts of the Southern Provinces, and in the adjacent Province of Ilorin. When collecting this product, the tappers could with advantage at the same time collect the shea nuts and thus help to stimulate the trade in shea butter.

THE SITUATION IN MALAYA.

By Our Regular Correspondent.

THE Rubber Lands (Restriction) Bill which the Colony, like the Federated Malay States, has just adopted, is bound to create a deal of discussion on your side. It is raising even more in Japan, where the press shows some bitterness. But Japan should be the last to grumble. She herself set up, long before the present war started, an example of the protection of land against alien ownership that will take a deal of beating. That was a permanent measure. This in Malaya is purely a temporary war measure. When hostilities cease the whole question will again be reopened. The point is that it is intended to prevent anyone from coming in and taking advantage of present British embarrassments. Afterwards—who knows? The question is complicated to a degree and will be difficult to solve. But this is certain: capital will be wanted to develop the country, and we have a suspicion that, with British capital scarce, American capital will not be turned away. Those at the head of affairs here are shrewd enough to know that if American capital, which must be before long be invested in rubber lands, is refused in Malaya it will find its way to Java or, perhaps better still for rubber-growing, Sumatra.

A SUGGESTED SOLUTION.

Why cannot Malaya follow Dutch company law which lays down that lands shall be held by a company registered in Holland, i. e., by a Dutch company, but that a British or American company may work the concession for the Dutch company? We have instances in the General Rubber Co.'s huge estates in Sumatra, and the Pulau Bulang Rubber and Produce Co. On a Dutch island near Singapore. However that may be, and whatever the future may hold, the present measure should not be taken too seriously in the United States. It aims at doing no more than preventing the transfer of British property to aliens during a time of financial pressure. Judged from that, the proper point of view, it becomes less serious than it seems at a first glance.

BROWN BAST.

Quite a scare was raised recently by Messrs. Macgill and Milne who, at a meeting of the Taiping District Planters' Association, gave particulars of a serious new rubber disease—Brown Bast.

Mr. Macgill said: "Undoubtedly Brown Bast is a most serious disease. To start with, it eats up the bark material and then strays over a very considerable area. The question arises, what is Brown Bast? Is it *Phytophthora Faberi*, and, if so, why are its habits so peculiar? Brown Bast seems first to attack the bark, use up all the best food, and, finally, enter the latex-bearing

layer, and so on into the cambium. It is only when it enters the latex cells that it becomes noticeable to the tapper and those in charge, by drying up the cut. The disease may have entered the cells anywhere, not necessarily on the cut. So that when the tree is shaved for inspection it is, often as not, found that a large area is diseased. Brown Bast may be in the tree for months before being discovered. A cut stopped near the collar for want of bark may have it only slightly and not sufficiently developed to stop the latex there. But the disease does not stop at the stem and in time enters both the tap root and the lateral roots, where it is most difficult to treat, as one has to go a great way down to cut the Brown Bast off. The highest that the disease is known to go on a tree is approximately six feet, and the lowest 12 to 15 inches down. It is very hard to find it in the early stages of the disease as the bark fades gradually.

I do not profess to say what Brown Bast is, but it is generally supposed to be *Phytophthora Faberi*."

Mr. Milne said that he had written to the government about the wide prevalence of Brown Bast and had asked that the disease be promptly investigated and a bulletin issued. This was only 2½ months previous and perhaps the Department of



SNAP SHOT OF SOME AMERICAN PLANTERS IN MALAYA.
Albert Waterhouse, F. G. Wallace, L. A. Hicks and the British Collector of Customs.

Agriculture had not had time to do this. Mr. Milne had pointed out the serious nature of the disease and had asked for assistance from the government, but so far he had received none. He had also written rather strongly to the papers about the disease. It now remained for them to do the best they could by acting in the right spirit to each other.

GOVERNMENT INDIFFERENCE.

The foregoing occurred some weeks ago, yet the Federated Malay States Department of Agriculture still maintains a serene silence. Planters look to the Department either to assert the fallacy of the report or else to outline remedial measures at once. The need of prompt action in such matters was clearly stated in the report of the Director of Agriculture for 1908, which was as follows:

The climate of Malaya is exceptionally favorable for rapid and healthy plant growth, but the conditions of constant humidity and heat are favorable to insects and fungi, which cause nearly all the disease to which plants are liable, and for this reason neglect to take all precautionary measures that are possible, and dilatoriness in combating the evil when it has come, are more culpable and dangerous than in countries where alternate dry and wet seasons are in themselves deterrent to plant enemies. The italics are mine.

CONCERNING DISEASES.

Touching rubber diseases, by the way, a lengthy chat with an experienced planter on the subject may be summarized as follows:

Disease and over-planting are closely related, but just what

degree of immunity follows rigorous thinning-out has still to be determined. For that matter, the whole question of rubber diseases has still to be gone into with the thoroughness it demands. The difficulty is that directors in London are not sufficiently alive to the dangers attending diseases. They will vote a miserly £200 where 5,000 or 10,000 trees, worth at least £1 apiece, are affected, which is simply toying with a very serious question. Speaking generally, however, and in the light of present-day knowledge, thinning-out is the one way to keep trees moderately immune from disease. It makes for stronger growth,



T. Petch.

HEVEA CANKER CAUSED BY PHYTOPHTHORA FABRI.

Cortex cut away to show the discolored area.

greater vitality and hence greater powers of resistance to disease, and gives more light and air which prove deadly to fungus pests. But the number of trees per acre in one locality will not hold for another locality, and it is here that each manager must judge for himself. It should be possible, however, to discover how many trees, of a certain girth, may safely be allowed per acre and from that safe basis each manager could modify the figure where necessary. It is high time that the problem should be approached scientifically, because there is a considerable amount of bark disease about and that particular disease is spreading. The question is not perhaps quite serious as yet, but it is rapidly approaching the serious stage; and it should be vigorously tackled now. When it does reach the serious stage remedies may be too much depending on

found a little too late, and there is too much depending on the health of rubber trees to make procrastination other than criminal.

A BELATED RECOMMENDATION.

To hark back for a moment to the Director of Agriculture. He has issued with the Agricultural Bulletin, just two months after it was drafted, a circular dealing with the subject of resting older trees. It is as follows:

Kuala Lumpur, May 31, 1917.

Sir,—

I have the honor to inform you that at the meeting of the Advisory Committee to this Department, held on the 30th instant, it was decided to call the attention of managers to the opportunity that may be afforded by the reduction of rubber exports for resting the older trees on estates.

If such a reduction of exports has to be maintained for some time, it will almost certainly result in a reduction in tapping. This can be effected in various ways, but the Committee were of the opinion that the best way was to rest the older areas completely, since it is most usually these areas which have suffered in the past from the bad tapping methods prevalent in the earlier days of the industry; since in them, bark renewal often is or has been slow owing to original close planting and late thinning-out; and since it is now recognized that the longer a tree has been tapped the longer should be the period for bark renewal. At the same time steps might be taken to treat all diseases thoroughly, on these older areas, and especially to get rid of any attacks of black stripe (*Phytophthora sp.*), or of moldy rot that may be present on the renewing bark.

It was considered that such a course would be generally pre-

ferable to that of postponing the tapping of young trees which are about to come into bearing. There is, however, this exception, that little advantage is to be gained by stopping the tapping of any areas of older trees that may already be badly attacked by root diseases.

This is sound and sensible, but why was the recommendation of the committee held up for a couple of months?

L. LEWTON BRAIN.

THE SITUATION IN BRAZIL.

By a Special Correspondent.

ON September 7, 1917, Brazil celebrated her independence day, and on that date Amazonas was opened to all friendly nations. In commemoration of the latter event, the Brazilian Red Cross was founded by the Associação Commercial and the Instituto Historico e Geographico.

PRESENT FINANCIAL CONDITIONS.

According to "O Imparcial" and "Wileman's Brazilian Review," a review of Brazilian affairs as they are to-day after 95 years of independence is discouraging, to say the least. A financial condition exists which is reminiscent of that prevailing in France before the great Revolution. Here, too, the national debt, accumulated to an appalling amount through decades of maladministration, is sought to be liquidated by contracting fresh debts and supertaxing the laborer. Shortage of specie is met by continual issues of paper money, and specie payments are renewed by allowing treasury bills to be dishonored. Petty state interests fight the important issues of the republic and make it possible for dishonest customs' officers to defraud the country to the extent of hundreds of thousands per annum. This state of affairs is especially rife in the northern provinces, where a considerable deficit in customs' receipts—especially on rubber—was recently discovered. And so it happens that the same page of a newspaper congratulates the country on its prosperity and agitates against the high cost of living in the midst of plenty—a circumstance which, owing to extreme depreciation in currency plus the inflated prices of bare necessities, is grinding the lower middle classes as well as the poor.

IMPORTS AND EXPORTS.

Although imports and exports of rubber and rubber goods have decreased in certain localities, it seems that the entrance of the United States in the war is causing increased activity in the rubber-producing centers.

Below are tables of imports and exports in various districts:

		EXPORTS TO THE UNITED STATES.			
		1915.		1916.	
Crude rubber:		Pounds.	Value.	Pounds.	Value.
From—					
Bahia	2,109,789		\$636,905	1,117,504	\$368,084
Pernambuco	690,124		215,416	854,009	525,837
(a)			(a)	8,861	3,425
Natal	(a)		(a)	29,925	10,033
Totals	2,799,913		\$852,321	2,010,299	\$907,379
Carnauba wax:					
From—					
Bahia	205,839		\$38,817	58,475	\$12,135
Pernambuco	702,809		162,538	158,907	52,028
Totals	908,648		\$201,355	217,382	\$64,163
(a) Included in Pernambuco exports.					
		IMPORTS.			
		RIO GRANDE DO SUL.			
Rubber goods					\$28,878
Automobiles					18,845
Automobile accessories					3,794
Total					\$51,517
		SANTOS.			
Hose and rubber tubing:					
From—					
Germany			\$310		
United States			16,185		\$19,947
United Kingdom			5,740		5,237
Totals			\$22,235		\$25,184
Tires and inner tubes:					
From—					
United States			\$164,910		\$292,036
France			38,810		52,393
United Kingdom			2,690		219
Italy			186,192		198,681
Totals			\$392,602		\$543,329

Tires and tubes: From—	SAO PAULO. 1915		1916.	
United States	210,705	\$397,009	159,313	\$317,594
Other countries	489,394	589,614	221,088	256,607
Totals	700,099	\$986,623	380,401	\$574,201
Other rubber goods.....	156,534	\$209,099	92,399	\$174,436

Freight rates for rubber and carnauba wax between Bahia and New York were:

	January, 1915.	June, 1916.	January, 1917.	April, 1917.
Rubber, 1,540 pounds.....	\$20.68	\$41.36	\$41.00	\$41.00
Carnauba wax, 1,540 pounds...	.....	.....	43.00	43.00

On the whole, the United States had the largest share in the business with the ports mentioned, although the rubber exports from Bahia have been on the decrease for some years. In São Paulo there is a good market for rubber goods and specialties, automobiles and tires, surgical and dental instruments and supplies.

SHIPPING.

The seizure by Brazil of 46 German ships lying in different ports will release for the allies an amount of tonnage that is especially welcome just at present. These vessels have been incorporated with the Lloyd Brasileiro and ten of them, with a gross tonnage of over 47,000, have already put to sea; ten more will be available within a very short time, while the rest will be ready as soon as those parts which are missing have been replaced. The boats have been distributed among the New York, European and coasting lines.

Shipping to and from Amazonas still appears to be painfully restricted in spite of these additions. As a result, great quantities of stock have accumulated, finance is upset and commerce paralyzed. There is much press agitation for quick and effective action by the government.

According to "Wileman's Brazilian Review," August 21, 1917, the distribution of rubber over the fiscal years 1915-16 and 1916-17 was as follows:

	1915-16.		1916-17.	
	Tons.	Percentage.	Tons.	Percentage.
Great Britain	9,615	27.6	11,011	30.5
America	7,480	21.5	7,774	21.5
France	177	0.5	1,019	2.8
Total Allies	17,272	49.6	19,804	54.8
Brazil	8,511	24.4	12,001	33.2
Enemy	4,547	13.0	1,785	4.9
Unspecified exporters	4,520	13.0	2,562	7.1
Total	34,850	100.0	36,152	100.0

Inclusive of rubber in transit from the Brazilian port of Itacoatiara and from Iquitos in Peru, the total exported in 1916-17 by the whole Amazon was 38,172 tons, of which 20,714 tons were from Pará, 15,438 tons from Manáos, 110 tons from Itacoatiara and 1,909 tons from Iquitos.

The biggest individual shipper from the two ports for the season 1916-17 was an American firm, the General Rubber Co. of Brazil, with 7,774 tons, followed by the Brazilian firm of J. Marques & Co. with 5,518 tons and the British firm of Stowell Bros. with 5,183 tons; another Brazilian firm, Tancredo Porto, coming fourth with 3,283 tons.

As will be noted, enemy firms succeeded in shipping 1,785 tons, thanks to the policy of the Lloyd Brasileiro. Still, this is a marked decrease over 4,547 tons for the previous year, and considering that German houses are closing, one by one—it appears that Berringer, of Pará, and Ohliger, of Manáos, are discharging their Brazilian and Portuguese employees—there is good reason to believe that even this small amount will be reduced to nothing. On the other hand, Lloyd policy is uncertain, for have we not already learned that on the very first ex-German

steamer to put to sea—the *Cuyaba*—large quantities of coffee were shipped by enemy firms?

FEDERACAO MARITIMA BRAZILEIRA.

The above association was recently formed at Pará. It aims, in cooperation with similar Brazilian bodies, to promote the merchant marine, especially of the Amazon, and will care for the interests of sailors and their families. Besides this, it intends to collect samples of raw materials from the Amazon, with a view to founding a permanent exposition of national wealth, and furthermore to publish a bulletin which shall be the official organ of the association.

EXPORT TAXES.

The Chamber of Deputies of Pará passed a bill on September 14, 1917, introducing new export taxes. For the different grades of rubber the taxes, ad valorem, are as follows:

India rubber, <i>Hevea</i> -fine, sheets.....	18	per cent
Medium and fine smoked or coagulated by any process; sernamby and caucho, smoked or coagulated by any process.....	19.5	" "
Sernamby and caucho, washed.....	18	" "
Other kinds	25	" "

NEW CABLE SERVICE.

After a monopoly of telegraphic service for 45 years, the Western Telegraph Co. has seen its right of preference waived in favor of the American concern, The Central and South American Telegraph Co. This firm will lay two submarine lines between Argentina and the Brazilian cities Rio de Janeiro and Santos.

J. A. MENDES RESIGNS.

J. A. Mendes, for many years the leading figure in the house of J. Marques, crude rubber exporter, Para, Brazil, is reported to have retired from this firm.

RUBBER AND BALATA IN BRITISH GUIANA.

Rubber cultivation, according to the 1916 report of the Lands and Mines Department of British Guiana, has now passed the experimental stage in this colony, and only the introduction of capital and labor are necessary to establish rubber-growing in British Guiana on as firm and successful a basis as anywhere in the East, but with the added advantage of close touch with the European and American markets.

This statement, in addition to the export figures for 1916—15,586 pounds as against 4,603 pounds in 1915—would tend to show that leaf-fall, which seriously attacked *Hevea* in this district, is being dealt with successfully.

The balata industry, too, seems to be rallying, the output during 1916—1,478,631 pounds—having been greater than for some years past. High prices and the enormous demand for balata belting have supplied the necessary stimulus.

After much agitation on the part of those interested, the government at last decided not to enforce the clause in the Crown Lands Regulations which prohibited the use of spurs by balata bleeders. However, this decision will hold only until it has been proved that their use is injurious to the trees; moreover, heavy fines will be imposed on licensees in cases where trees have been destroyed or seriously hurt by improper use of spurs or excessive bleeding.

This is a fault which recent inspections of the balata forests have shown to be only too prevalent and which cannot be cured too severely, seeing that the maximum yield is obtained by bleeding the tree on one side at a time only, as prescribed by the regulations. However, work as a whole was found to be fairly satisfactory, owing, no doubt, to increased skill of the bleeders and improved supervision.

Registers show that there were 4,172 laborers employed in the balata industry, chiefly in the Georgetown and New Amsterdam districts.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED SEPTEMBER 11, 1917.

- N**O. 1,239,441. Door bumper with rubber block. J. T. Allmand, assignor to Fisher Closed Body Co.—both of Detroit, Mich.
- 1,239,454. Tire-removing tool. C. A. Boyd, Milwaukee, Wis.
- 1,239,506. Demountable rim. W. J. P. Moore, New York City.
- 1,239,553. Cord tire. C. L. Archer, Minneapolis, Minn.
- 1,239,576. Animal anesthetic apparatus with rubber curtain and non-collapse tube. G. M. Dorman, St. Joseph, Mo.
- 1,239,606. Demountable rim. H. F. Klein, St. Anthony, N. D.
- 1,239,628. Composition shoe tap or half-sole. J. H. Shoemaker and H. Bruck—both of Portland, Oregon.
- 1,239,642. Safety bath-tub mat having a section of flexible waterproof material. L. D. Tolley, St. Louis, Mo.
- 1,239,658. Vehicle wheel having a curved cross-section rubber tire. J. J. Adamsen, Seattle, Wash.
- 1,239,695. Container and cutter for rubber dam sheets. A. H. Jensen, Cheney, Wash.
- 1,239,711. Non-skid chain. F. E. Messier, Canton, Ill.
- 1,239,724. Artificial bass bait or frog with elastic connection. T. Reimers, Omaha, Nebr.
- 1,239,749. Non-skidding and tire holding device for pneumatic tires. E. Veltung, New York City.
- 1,239,769. Combined socket and handle for an air-pressure gage and hose connector. F. B. Charroin, Seattle, Wash.
- 1,239,813. Flexible closure for tire casings. P. Overman, Santa Barbara, Cal.
- 1,239,824. Twin rim for wire spoked vehicle wheels. J. V. Pugh, Allesley, assignor to Rudge Whitworth, Limited, Coventry—both in England.
- 1,239,835. Storage battery and method of making same. R. L. Smith, Everett, Mass.
- 1,239,856. Anti-slipping device. M. E. Wickwire, Lehigh, Iowa.
- 1,239,886. Pneumatic tire. E. E. Cole, Chicago, Ill.
- 1,239,923. Milking machine teat cup. M. Leitch, Poughkeepsie, N. Y., assignor to The De Laval Separator Co., a corporation of New Jersey.
- 1,239,947. A rubber douche bag. F. J. O'Rourke, New York City.
- 1,239,960. Receptacle for retaining brakeband lining and the like. E. L. Pohlman, Indianapolis, Ind.
- 1,239,971. Fountain pen. W. J. Ruff, Quincy, Ill.
- 1,239,972. Fountain pen. W. J. Ruff, Quincy, Ill.
- 1,239,974. Hard rubber spark plug tester. C. Seymour, Burlington, Vt.
- 1,239,980. Body protector with elastic bands. W. L. Stewart, Des Moines, Iowa.
- 1,239,995. Convertible coat and cape. J. C. Whiteside, Rutherford, N. J., assignor to Hodgman Rubber Co., Yonkers, N. Y.
- 1,240,034. Projecting device with rubber caps. R. Dobbs, Newkirk, Okla.
- 1,240,038. Talking machine with rubber lip. F. J. Empson, Sydney, New South Wales, Australia, assignor to The Aeolian Co.
- 1,240,040. Valve unseating clip for tire valves. L. Fowler, South Britain, Conn.
- 1,240,051. Armored pneumatic tire. D. E. Johnson, Hinsdale, N. Y.
- 1,240,059. Vehicle wheel tire. W. N. Knowlton, Brooklyn, N. Y.
- 1,240,078. Adjusting means for printing press rollers comprising an expandable tire of ring form and of solid elastic material. V. G. Morgan, assignor to P. W. Cowan—both of Los Angeles, Cal.
- 1,240,109. Abdominal support with an elastic plate, for medical and surgical use. S. A. Walton, West Hampstead, London, England.
- 1,240,125. Surgical appliance having flexible sack. B. M. Doud, Gillette, Wyo.
- 1,240,146. Permutation tire lock. I. E. Jackson, Casa, Ark.
- 1,240,147. Circuit closing device with elastic cord. R. P. Johnston, Asheville, N. C.
- 1,240,153. Pneumatic cushion for shoes. G. Olsen, assignor to Keene Shock Absorber Co.—both of Trenton, N. J.
- 1,240,162. Demountable rim for tires. I. D. Walter, Harrisburg, Ark., assignor of four-fifths to others.

ISSUED SEPTEMBER 18, 1917.

- 1,240,433. Air bag for repair vulcanizing. F. J. Foote, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.
- 1,240,652. Hose supporter. A. F. Beevers, Cleveland, Miss.
- 1,240,659. Telephone mouthpiece. W. Booth, East Liverpool, Ohio.
- 1,240,686. Pocket life-buoy. P. De Luca, Rome, Italy.
- 1,240,746. Rubber ring silencer for covers of commodes. E. McCracken, Hastings, Nebr.
- 1,240,789. Split clincher demountable rim with locking and alining device. W. N. Booth, assignor to Kelsey Wheel Co.—both of Detroit, Mich.

ISSUED SEPTEMBER 25, 1917.

- 1,240,866. Inflated game ball. W. Miller, Newport, Ky., assignor to The P. Goldsmith's Sons Co., Cincinnati, Ohio.
- 1,240,888. Vehicle wheel rim. E. C. Shaw, Akron, Ohio, assignor to The B. F. Goodrich Co., New York City.
- 1,241,006. Tire armor. D. Oatman, Corpus Christi, Texas.
- 1,241,066. Anti-skid device for wheel tires. D. H. Weir, Omaha, Nebr.

Chemical Patents will be found on pages 88-90.

- 1,241,107. Separable rim. H. Gale and W. B. Romeiser—both of Timken, Kansas.
- 1,241,345. Coupling means for demountable rim sections. F. B. Cumpston, Blooming Grove, Texas.
- 1,241,380. Cushion tire. A. C. Hileman, assignor to Triple Airless Tire Co.—both of Butler, Pa.

ISSUED OCTOBER 2, 1917.

- 1,241,621. Non-skid tire grip. H. D. Greene, Britt, Iowa.
- 1,241,626. Hose coupling. F. Hachmann, assignor of one-half to F. C. Schoenthaler—both of St. Louis, Mo.
- 1,241,654. Hose coupling. J. L. Osgood, Buffalo, N. Y.
- 1,241,792. Tire armor. W. G. Wagner, assignor of one-third to B. Cohen and one-third to H. Cohen—all of New York City.
- 1,241,822. Toy balloon. J. E. Cooney, Pawtucket, R. I.
- 1,241,832. Arch support comprising elastic tubing. C. H. Druckenmiller, Clarendon, Va.
- 1,241,845. Sectional cushion tire. E. T. Griffith, Indianapolis, Ind.
- 1,241,852. Resilient tire. E. S. Jones, assignor of one-tenth to M. W. Meyer and N. H. Meyer—all of Mobile, Ala.
- 1,241,941. Reversible seamless rubber glove. J. E. Dowd, Hiawatha, Utah.
- 1,242,047. Hose coupling. A. T. Sawyer, Livermore Falls, Me., assignor of one-half to W. H. Dixon.
- 1,242,060. Pipe patch comprising flexible waterproof sleeve. F. C. Smakal, Midas, Nev.
- 1,242,069. Composition lining for brake shoes. R. J. Stokes, Trenton, N. J.
- 1,242,071. Writing machine cylinder comprising a rubber tube body. H. Strongson, assignor of one-half to R. F. Greason—both of New York City.
- 1,242,078. Non-skidding tire armor. R. B. Thompson, Allerton, Ill.

ISSUED OCTOBER 9, 1917.

- 1,242,123. Spring tire comprising resilient blocks. J. Arn, Columbus, Ohio.
- 1,242,213. Resilient shoe heel lift. G. H. Lewis, Elyria, Ohio.
- 1,242,237. Pneumatic-tired vehicle wheel. W. S. Price, Syracuse, N. Y.
- 1,242,252. Inner tube. A. B. Shaw, assignor to Shaw Tire Co.—both of Medford, Mass.
- 1,242,310. Demountable rim. O. E. Bahrenburg, Marigold, Cal.
- 1,242,323. Fountain pen. H. G. Craig, St. Louis, assignor to Kraker Pen Co., Kansas City—both in Mo.
- 1,242,330. Demountable rim device. E. H. Cavia, Memphis, Tenn.
- 1,242,409. Rim breaker. J. R. Wright, Legrand, Iowa.
- 1,242,484. Protector for pneumatic tires. J. W. Smith, Nooksack, Wash.
- 1,242,602. Man's garter. M. W. Schloss, assignor Treo Co., Inc.—both of New York City.
- 1,242,640. Resilient tire consisting of a rubber tire and a metal rim. F. W. Battershall, Albany, N. Y.
- 1,242,641. Wheel comprising a hub, a pair of side plates and an air-tight fabric connecting the margins of the plates and constituting an annular closed chamber. A. L. O. Begg, New York City.
- 1,242,584. Bathing cap having expansible ear flaps. V. Guinsburg, assignor to I. B. Kleinert Rubber Co.—both of New York City.
- 1,242,691. Fabric non-skid device for tires. G. L. Herex, New York City.
- 1,242,742. Sealing closure with removable gasket. H. E. Townsend, assignor to The Anchor Cap & Closure Corp.—both of Brooklyn, N. Y.
- 1,242,743. Side seal for glass containers and the like. H. E. Townsend, assignor to The Anchor Cap & Closure Corp.—both of Brooklyn, N. Y.
- 1,242,752. Life preserver. O. A. Youngren, assignor to the National Life Preserver Co.—both of Sheridan, Wyo.
- 1,242,832. Golf and other playing balls. P. A. Martin and J. Stanley—both of Birmingham, England.
- 1,242,846. Resilient tire. J. A. Olinger, Butler, Pa.

ISSUED OCTOBER 16, 1917.

- 1,242,903. Tube comprising oppositely wound spiral layers containing waterproof adhesive fabric. E. H. Angier, Framingham, Mass.
- 1,242,950. Rim contractor. E. Knaus, assignor to The K. P. Manufacturing Co., Inc.—both of New York City.
- 1,242,977. Rubber sole for boots and shoes. R. B. Price, assignor to The New York Belting and Packing Co.—both of New York City.
- 1,243,022. Non-skid attachment for tires. F. Wengraf, Naugatuck, Conn.
- 1,243,040. Armor for pneumatic tires. W. G. Chilton and J. H. Hobgood—both of Houston, Texas.
- 1,243,054. Syringe comprising a water bag. J. H. L. Eager, New York City.
- 1,243,087. Demountable rim for vehicle wheels. R. G. Mason, Brooklyn, N. Y.
- 1,243,114. E. A. Saunders, Mishawaka, assignor to Morgan & Wright, Detroit, Mich.
- 1,243,209. Golf shoe. W. Park, New York City.
- 1,243,259. Reinforced spring tire. J. F. Carroll, Lakewood, Ohio.
- 1,243,303. Resilient tire. J. B. Jones, Arcata, Cal.
- 1,243,313. Demountable rim. C. Lubbe and L. H. Free—both of San Francisco, Cal.
- 1,243,368. Separator for storage batteries and process of producing the same. T. A. Willard, Cleveland, Ohio.
- 1,243,369. Tubular diaphragm for storage battery electrodes and process of producing the same. T. A. Willard, Cleveland, Ohio.
- 1,243,370. Storage battery separator and process of producing the same. T. A. Willard, Cleveland, Ohio.

Machinery and Process Patents on pages 89-90.

- 1,243,371. Porous tube for storage batteries. T. A. Willard, Cleveland, Ohio.
 1,243,381. Folding bucket. H. D. Bokop and F. A. Bokop—both of Delaware, Ohio.
 1,243,383. Fountain pen. C. Bristow, London, England.
 1,243,396. Dental suction disk. N. Cohen, assignor of one-half to F. Bowman—both of Swindon, England.
 1,243,415. Life preserver. A. L. Jaynes, Chicago, Ill., assignor to Safety on Sea Co., a corporation of Delaware.
 1,243,447. Eraser. W. Roberts, Montclair, N. J.
 1,243,513. Pneumatic tire. R. Grubb, Philadelphia, Pa.
 1,243,515. Pneumatically tired wheel. G. C. Hanna, Plainfield, Ind.
 1,243,521. Combined exhaust and inflating nozzle for pneumatic tires. R. H. Henemier, New York, assignor to A. Schrader's Son, Inc., Brooklyn—both of New York.
 1,243,576. Cord tire. C. L. Archer, Minneapolis, Minn.
 1,243,578. Auxiliary tread for tires. E. Bardelle, New York City.
 1,243,624. Demountable rim. C. N. Outerbridge, Charlottesville, Va.
 1,243,633. Tire armor. E. M. Russell, Battle Mountain, Nev.
 1,243,653. Non-skid armor. F. H. Childs, Stroud, Okla.
 1,243,657. Tire armor. J. Coan, Kansas City, Mo.

THE UNITED KINGDOM.

ISSUED SEPTEMBER 5, 1917.

- 107,782. Rubber protector for soles and heels of boots and shoes. A. G. H. Shears, "Wykeham," Cambridge Road, Lee on Solent, Hampshire.
 107,805. Continuous rubber chain-embedded driving belt. C. Lee, 39 Francis Road, Stechford, Birmingham.
 107,867. Rubber buffer and similar springs. A. G. Spencer, Cannon street, London, and C. W. C. Hine, "Moleway," Dorking, Surrey.
 107,861. Cushion heel lift of rubber. A. Woosnam, 10 New Court, Lincoln's Inn, London.
 107,864. Ebonite ring for telephone transmitters. T. Chalmers, 81 Underwood Lane, West street, Crewe.
 107,913. Parlor game employing inflated balls. A. E. Prosser, 546 Holloway Road, London.
 107,919. Rim protector. H. F. Tewksbury, 7 Highfield Road, Isleworth, and National Motor Cab Co., 134 Kings street, Hammersmith—both in London.
 107,934. Elastic bust supporters. Z. Wardalla, 30 Inverness Terrace, Bayswater Road, London.
 107,940. Screw stopper for hot water bottle having a detachable rubber coating. F. W. Ingram, and E. J. Everest, London India Rubber Works, Hackney Wick, London.

ISSUED SEPTEMBER 12, 1917.

- 107,990. Inhaler and gas douche. J. A. Ward, St. Stephen's House, Westminster, and F. O. Read, 118 Cranbrook Road, London.
 108,068. Device for fitting over a pneumatic tire comprising a wearing surface of rubber. U. Favretti, 56 Via Saluzzo, Turin, Italy.
 108,076. Waterproof garment of the overall protective type. O. B. Kelm, Mojave, California, U. S. A.
 108,079. Shoe protector for motorists attached by means of rubber straps. E. A. Johnson, Walton avenue, Los Angeles, California, U. S. A.
 108,122. Resilient heel or heel pad. F. A. Nolan, 701 New York Life Building, St. Paul, Minnesota, U. S. A.
 108,123. Resilient heel or heel pad. F. A. Nolan, 701 New York Life Building, St. Paul, Minnesota, U. S. A.

ISSUED SEPTEMBER 19, 1917.

- 108,179. Rim attachment for pneumatic tires. J. F. van der Velde, 12d Bezuidenhout street, Troyeville, Johannesburg, South Africa.

ISSUED SEPTEMBER 26, 1917.

- 108,364. Rubber parachute curtain. W. Croxon, 16 Cassimer Terrace, Clapton, London.
 108,408. Pneumatic cushion tire. C. F. A. Gray, 46 Richmond Square, Montreal, Canada.
 108,414. Rubber curb protectors for mud guards. C. Guise, "Hazelhurst," Hornoyd avenue, Malvern, and T. J. Southall, "Enderlie," Selborne Road, Worcester.
 108,419. Aviator's helmet containing a band or ring of sponge rubber. C. H. Curtis, 12 Grafton street, New Bond street, London.
 108,440. Racing saddle, the middle part of which is made of rubber. L. J. A. Augustin-Normand, Chicheboville par Argences, Calvados, France.
 108,464. Electric cables. Pirelli & Co., Milan, Italy.
 108,483. Artificial pneumatic eyes comprising anterior walls of hard rubber or vulcanite enamelled or printed to represent the visible portions of a natural eye and posterior and lateral walls of soft elastic rubber. G. Valois, 23 Place Bréchimbault, Moulins, and J. Rouveix, 28 avenue d'Antin, Paris—both in France.

ISSUED OCTOBER 3, 1917.

- 108,526. Vehicle wheels. Dunlop Rubber Co., 14 Regent street, Westminster, and F. J. Keegan, Alma street, Coventry, Warwickshire.
 108,627. Mud guard comprising a ring of rubber. C. Guise, "Hazelhurst," Hornoyd avenue, Malvern, and T. J. Southall, "Enderlie," Selborne Road, Worcester.
 108,655. Atomizer operated by a rubber air-bulb. R. J. Reuter, and G. Lemiere, 69 Carter Lane, London.
 108,658. Non-skid device for tires. C. R. Standley, 806 Keeler street, Boone, Iowa, U. S. A.

THE DOMINION OF CANADA.

ISSUED JUNE 30, 1917.

- 177,413. Life saving device comprising an outer flexible waterproof garment. I. Gilbert, Chicago, Illinois, U. S. A.
 177,704. Fountain pen. E. G. Peck, Seymour, Connecticut, U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

- 483,456 (November 14, 1916). Elastic wheel. Pourtauborse and Buisson.
 483,508 (November 17, 1916). Improvements in pneumatic tires. C. F. A. Gray.
 483,576 (October 14, 1916). Anti-skidding envelope for pneumatic tires for all vehicles. Michelin & Co.
 483,592 (November 24, 1916). Shoe-sole and method of manufacture. United Shoe Machinery Co. of France.
 483,612 (November 27, 1916). Improvements in elastic wheels. G. Greco.
 483,636 (November 29, 1916). Improvements in pneumatic tires. J. C. Barker.
 483,644 (November 30, 1916). Elastic bandage. C. A. Simmons.
 483,664 (December 1, 1916). Improvements in pneumatic tires. B. Granville.
 483,713 (December 6, 1916). Waterproof clothing. O. B. Kelm.
 483,730 (December 7, 1916). Improvements in pneumatic casings. The Miller Rubber Co.

TRADE MARKS.

THE UNITED STATES.

- 92,845. The hyphenated word VUL-TEX—a cold self-vulcanizing texture-back patch for tires and the like. C. Peterson, Minneapolis, Minn.
 100,370. The head of an Indian and the word NAVAJO enclosed in a rectangle—woven machinery belting. Jewell Belting Co., Hartford, Conn.
 100,791. The word BATEX—footwear, namely, rubber and leather boots and shoes, rubber boots and shoes and slippers. Bates Co., Webster, Mass.
 101,921. A triangle enclosing the word APEX—rubber boots and shoes. Goodyear Rubber Co., Middletown, Conn.
 103,662. The word NIFTY—notions, including elastic tape and elastic cord. George Borgfeldt & Co., New York City.
 103,996. The word STANWAL—for use on brake lining. Standard Woven Fabric Co., Walpole, Mass.
 104,160. The word AFPO—automobile jacks and tire-saver jacks. The Ashland Products Company, Ashland, Ohio.
 104,567. The word CADILLAC in an oval seal—shoes, boots and rubbers made of leather, rubber and canvas. J. G. Tavares, New York City.
 104,595. The figure of a blue bird and the words BLUE BIRD—rubber belting and hose. New York Rubber Co., Matteawan and New York City, both in New York.
 104,596. The word WICCAPEE in the form of a semi-circle—rubber belting and hose. New York Rubber Co., Matteawan and New York City, both in New York.
 104,722. The word BARAUT—packing. Small & Parks, Limited, Harpurhey, Manchester, England.
 104,844. The word SAGAMORE—belting and hose of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
 104,846. The initial C enclosing the numeral 4—belting of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
 104,850. The word MOHAWK—belting and hose of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
 105,212. The word ADVANTAGE—rubber boots and shoes. Selz, Schwab & Co., Chicago, Ill.
 105,213. The word HYDRO—rubber boots and shoes. Selz, Schwab & Co., Chicago, Ill.
 105,346. A concentric circle enclosing a magnolia flower and the word MAGMETCO—sulfuret of antimony, a pigment used to impart color to rubber goods. Magnolia Metal Co., New York City.
 72,781. A triangle containing two representations of the letter F, one facing to the right and the other to the left. The space enclosed by these letters contains in smaller letters F R T and Co. Above the triangle at the left hand upper corner is the word FULTON—rubber stamps, rubber type printing outfits, dating stamps, and numbering stamps. Fulton Rubber Type Co., Elizabeth, N. J.
 98,548. The compound word TIP-TOP—vulcanizing outfit for tires, including inside patch vulcanizer, self-contained boiler, tube plates, adjustable clamp and bead molds. The Akron Rubber Mold & Machine Co., Akron, Ohio.
 104,112. The words AJAX ROAD KING—automobile and bicycle tires of rubber and fabric. Ajax Rubber Co., Inc., Millbrook, N. Y.
 104,779. The word HEMLOX enclosed in quotation marks—sheets of rubber or rubber compound for use especially in making rubber soles and shoes. Quabaug Rubber Co., Brookfield, Mass.
 92,753. Representation of an oval ground of red encircled by an oval border of gold or yellow, with the word UNION, in gold or yellow, in the center—rubber bumpers, stoppers for lavatories. L. Ray Lenich, Union City, Ind.
 104,440. The written words C. L. HAUTHAWAY & SONS, enclosed at the top and two ends by representation of a row of portions of barrels, the top border-line consisting of the top portion of the barrels, and the end border-lines consisting of portions of the two end barrels—cement for boots, shoes and other leather articles. C. L. Hawthaway & Sons, Inc., Boston, Mass.
 108,848. The word MONTANA—belting of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.

- 104,852. The words **SPADONE EDGE**—belting of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
- 105,093. The compound word **SIX-IN-ONE**—rubber rings for fruit jars. Fisher, Bruce & Co., Philadelphia, Pa.
- 105,858. The word **BANNER**—rubber banda. Eberhard Faber, New York City.
- 96,378. An oblong design representing two blue bars and one white bar of equal width, the white bar being in the middle—rubber sheeting, perforated rubber matting, firemen's rubber landing-mats and rubber blankets. United States Rubber Co., New Brunswick, N. J., and New York City.
- 105,194. The word **LOTRACTION** in white letters on a curved dark background—rubber tires. The Gordon Tire & Rubber Co., Canton, Ohio.
- 95,938. The word **NAUGATUCK**—boots and shoes having fabric uppers and rubber or composition rubber fiber soles attached thereto by vulcanization, and unattached soles of rubber and composition rubber and fiber. The Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn.
- 105,309. The word **APSOLE**—outting shoes, and rubber and composition soles. Apsley Rubber Co., Hudson, Mass.
- 106,375. The word **EVERLOC**—patches for repairing inner tubes and tire casings and other rubber goods. Winfield C. Wood, Minneapolis, Minn.
- 96,699. The words **WALL STREET**—leather, rubber, and canvas shoes. Jacob P. Schnellbacher, Peoria, Ill.
- 104,874. The word **MAHITOU**—belting of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
- 104,853. Representation of a swastika—belting and hose of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
- 104,858. The words **DON'T KISS ME** placed in between two concentric circles—ornamental teething rings for babies, hot-water bags, and covers for hot-water bags. Joseph H. Joseph, New York City.
- 104,909. The word **LEATHOTEX**—waterproof fabrics in the piece. New York Mills Corp., New York Mills, N. Y.
- 104,910. The word **LEATHOSWADE**—waterproof fabrics in the piece. New York Mills Corp., New York Mills, N. Y.
- 105,455. The word **AERO**—dress shields. I. B. Kleinert Rubber Co., New York City.

THE UNITED KINGDOM.

- 378,667. The word **RAINDURA**—men's and women's waterproof coats. Frank Fairbank, trading as Oxendale & Co., 61, Granby Row, Manchester.
- 377,738. The word **AXAX**—tubular hose. John Morris & Sons, Limited, Salford Fire Engine Works, Blackpool street, Cross Lane, Salford, Lancashire.
- 377,744. The word **SUVUS**—tubular hose. John Morris & Sons, Limited, Salford Fire Engine Works, Blackpool street, Cross Lane, Salford, Lancashire.
- 377,745. A horse-shoe enclosing the word **MAGNET**—tubular hose. John Morris & Sons, Limited, Salford Fire Engine Works, Blackpool street, Cross Lane, Salford, Lancashire.
- 377,746. A circle enclosing the word **ACME**—tubular hose. John Morris & Sons, Limited, Salford Fire Engine Works, Blackpool street, Cross Lane, Salford, Lancashire.
- 377,747. Representation of a hand and the words **AXAX WOVEN HOSE**, the word **WOVEN** being on the hand—hand-woven tubular hose. John Morris & Sons, Limited, Salford Fire Engine Works, Blackpool street, Cross Lane, Salford, Lancashire.
- 377,787. Two concentric circles, the inner one enclosing a white square, and a Maltese cross device, with the letters **L. B. R. Co.**, and the words "Trade Mark" and two ornamental designs in the space between the inner and outer circles—games of all kinds and sporting articles not included in other classes. Leyland & Birmingham Rubber Co., Limited, Golden Hill Works, Leyland, Lancashire.
- 379,155. Representation of two concentric circles. The space between the inner and outer circles contains the words **NORTH BRITISH RUBBER CO., LIMITED, EDINBURGH**, and the small circle encloses the word **ALBION**, and a representation of scales—clothing made in Great Britain and wholly or partly of India rubber, but not including hats and not including any goods of a like kind to hats. The North British Rubber Co., Limited, Castle Mills, Fountainbridge, Edinburgh, Scotland.
- 379,105. The word **VEL**—sponge substitutes (India rubber). H. A. Wanklyn, 17 Manchester avenue, Aldersgate street, London, E. C. 1.
- 379,106. The word **VELPAD**—sponge substitutes (India rubber). H. A. Wanklyn, 17 Manchester avenue, Aldersgate street, London, E. C. 1.

THE DOMINION OF CANADA.

- 22,630. The word **QUAKER** and representation of the head of a Quaker in the letter **Q**—rubber tires and pneumatic tires. C. A. Daniel, trading as Quaker City Rubber Co., Philadelphia, Pennsylvania, U. S. A.
- 22,631. The words **QUAKER CITY**—rubber hose and fabric hose, rubber belting, rubber sheet-packing, fabric sheet-packing, rubber rod-packing, fabric rod-packing, metallic rod-packing, rubber piston-packing, fabric piston-packing, metallic piston-packing and rubber gaskets. C. A. Daniel, trading as Quaker City Rubber Co., Philadelphia, Pennsylvania, U. S. A.
- 22,634. The words **GIBBALTAS RED SPECIAL**—belting, hose and heels, footwear, water and steam packing, air, water and steam hose, horse-shoe pads, tires, mats and matting, cement, golf balls, gaskets and valves, chair and crutch tips, and stair treads of rubber and other materials. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario.
- 12,680. Representation of a triangle—chewing gum. Common Sense Gum Co., New York City, U. S. A.
- 12,692. The word **CHICLE**, with letter **A** in juxtaposition therewith—chewing gum. American Chicle Co., New York City, U. S. A.
- 22,695. The word **SKOTCHMINT** in a panel on a plaid background and representation of a thistle—chewing gum. Short's Florient Gum Co., St. Thomas, Ontario.

- 22,696. The word **SKOTCHMINT** in a panel on a plaid background and representation of a thistle—chewing gum. Short's Florient Gum Co., St. Thomas, Ontario.

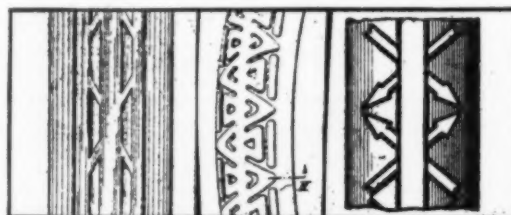
NEW ZEALAND.

- 13,533. Representation of a maple leaf, and the words **MAPLE LEAF BRAND**, the leaf being in the center and the three words at the left, right and bottom of the design, respectively—boots and shoes, and footwear generally. Canadian Consolidated Rubber Co., Limited, Montreal, Canada.
- 13,775. The word **GOODYEAR**, separated in the middle by a winged foot—rubber shoes and rubber garments. The Goodyear Tyre & Rubber Co., Akron, Ohio, U. S. A.
- 13,827. A circle enclosing a photograph of J. A. Dunlop with the signature below. Outside and below the circle is the word **DUNLOP**—rugs for personal use. Dunlop Rubber Co. of Australasia, Limited, 108 Flinders street, Melbourne, Victoria, Australia.
- 12,992. The word **DUNLOP**—covers and tubes for pneumatic tires either together or separately. Dunlop Rubber Co. of Australasia, Limited, Melbourne, Victoria, Australia.
- 13,911. The word **GOODYEAR** separated in the middle by a winged foot—vegetable substances used in manufactures. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Wellington, New Zealand.
- 13,919. The word **NEOLIN**, below which are the words **BETTER THAN LEATHER**—all articles of clothing. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Wellington, New Zealand.
- 13,921. Representation of a winged foot—vegetable substances used in manufactures. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Wellington, New Zealand.

DESIGNS.

THE UNITED STATES.

- 51,398. Bathing cap. Term 7 years. Patented August 3, 1917. A. R. Sheehan, Providence, assignor to Revere Rubber Co., Providence—both of R. I.
- 51,346. Tire tread. Term 14 years. Patented July 24, 1917. G. H. Lewis, Chicopee Falls, Mass.



51,346.

51,370.

51,391.

- 51,370. Pneumatic tire. Term 14 years. Patented August 2, 1917. A. A. Garthwaite, Conshohocken, Pa.
- 51,391. Tire tread. Term 14 years. Patented August 6, 1917. A. L. Pearce, Philadelphia, Pa.

AUSTRALIAN NOTES.

Shipping difficulties have not been without their influence on Australian trade, yet on the whole, the fiscal year ending June 30, 1917, was quite satisfactory, statistics showing a substantial surplus of exports over imports.

Of india rubber goods, the imports for the fiscal year 1916-17 showed a decrease as compared with those of 1915-16, the figures being \$5,187,875 and \$6,382,409, respectively.

The scarcity of ship tonnage presents itself at every turn. It is thought by some that if freight conditions permit, the Australian rubber industry may increase to a gratifying extent as a result of the order prohibiting the export of Ceylon rubber to the United Kingdom. Others maintain that the very shortage of shipping will stimulate local industry as nothing else. But the fact remains that rubber must still be had from Ceylon and Malaya, as the South Sea Islands do not yet produce a sufficient supply.

From the Milwaukee Brush Manufacturing Co., Milwaukee, Wisconsin, has been received Catalog No. 16, profusely illustrated and contained in an attractive loose-leaf buckram binder. In addition to many special types made to special order for rubber mills, this firm manufactures a general line of wire, bristle and fiber brushes and brooms for factory use. The present catalog features floor sweeping brushes, window brushes, counter or bench brushes, steel wire brushes of all kinds, sanitary brushes, toilet brushes, scrubbing brushes, etc.

Review of the Crude Rubber Market.

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NEW YORK.

THE market for October has, on the whole, been quiet and at times positively dull. While inquiries for futures, particularly the January-June positions, have been frequent, actual transactions were limited, due to indifference on the part of the producers in the present market. Moreover, the rubber manufacturers have not shown much interest in futures and are apparently pursuing a more cautious policy than usual at this period of the year. The scarcity of large buying orders during the past month indicates that the mills are amply provided with stocks, for the time at least. Considerable movement in small parcels of spot and nearby rubber was noticed when arrivals were more than sufficient to take care of contract deliveries; however, the general trend of the market has been downward and prices have declined.

PLANTATIONS. The reduction of 33 1/3 per cent in freight rates from the Far East to Pacific ports was known in Singapore, August 4, which accounts for the lower prices ruling in the eastern market prior to the present time. Therefore, there is reason to believe that this freight reduction will not have any particular effect on the present market. Freight rates on direct shipments from the Far East to New York have not been reduced, due to the scarcity of bottoms. Direct shipments of rubber from Java to New York have been temporarily suspended and important sailings held up, pending United States government arrangement with Holland. Shipments by the way of Pacific ports, however, are still being made.

On October 1, first latex crêpe spot was 65½ cents, with January-June positions at practically the same figures; while smoked sheet, ribbed spot and January-June futures were a cent lower. Easy market conditions prevailed and prices continued to decline as the month progressed; meanwhile heavy arrivals were reported at Pacific ports. During the last week of the month, cables from both London and Singapore announced advances and a better tone that was promptly reflected in the local market. On October 27, first latex crêpe spot was 64 cents and smoked sheet ribbed spot was 62½ cents.

PARAS. There has been very little interest shown in Brazilian sorts during the month. The market has been generally dull and prices have declined. On October 1, Upriver fine spot was 66½ cents, and on October 27, this grade was 63½ cents.

AFRICANS. The market was dull and declining with good inquiry, however, for Rio Nunez that could not be supplied, as imports of Africans have practically ceased.

CENTRALS. The demand has been irregular, largely due to the prevailing low prices of Caucho ball which has replaced Centrals inquiries excepting where holders have selling authority to meet the open market. Very little Centrals have arrived during the month and prices are unchanged.

BALATA. The market has been very steady, with a fair demand for all good medium grades. The arrivals of Surinam sheet and Ciudad Bolivar block have been very light and prices are unchanged.

LONDON

There was very little buying early in the month and the market developed an easy tone with downward trend. With the exception of an occasional rally, these conditions have generally prevailed throughout the past month. The heavy stocks that are being held in London against speculative attacks may become a source of weakness and result in over-loading the market.

The monthly price revision is shown by quotations on October 1, when standard crêpe spot was 32½d, and Smoked sheet ribbed 30¾d, compared with 33d and 32½d, the respective quotations on October 29.

London and Liverpool imports for August were 4,117 tons, value £1,103,368, compared with 6,717 tons, value £1,916,112, for July. Re-exports for August were 3,713 tons, value £1,116,351, compared with 3,368 tons, value £1,126,552 for July.

SINGAPORE.

Early in August the freight rate on rubber from Singapore, Penang and Straits Settlements to San Francisco, Seattle and Vancouver was increased to \$95 a ton, an increase of \$25 a ton. The rate before the war was \$24.

Weak conditions and declining prices were the features of the past month; however, during the closing week a buying movement materialized, resulting in a stronger undertone and advanced prices. At the auctions held September 28, October 6, 12 and 19, the average prices realized were: First latex crêpe 52.59 cents, compared with 53.76 cents last month. Smoked sheet ribbed, 52.06 cents, compared with 52.07 cents a month ago. The total amount sold was 1,879 tons against 2,751 tons last month.

NEW YORK SPOT QUOTATIONS.

PLANTATION PARAS—	Nov. 1, 1916.	Oct. 1, 1917.	Oct. 25, 1917.
First latex crêpe.....	63½ @	65½ @	63½ @
*Hevea first crêpe.....	60 @	61 @	59 @
Amber crêpe No. 1, gristly blanket	59 @	60 @	58 @
Amber crêpe No. 2.....	58 @	59 @	57 @
Amber crêpe No. 3.....	57 @	58 @	56 @
Brown crêpe, thick clean.....	57 @	58 @	56 @
Brown crêpe, thin clean.....	57 @	59 @	57 @
Brown crêpe, thin specky.....	@	54 @	52 @
Brown crêpe, rolled.....	@	44 @	42 @
Smoked sheet, ribbed standard quality	63 @	64½ @	62 @ 62½
*Hevea ribbed smoked sheets	@	62 @	60 @
Smoked sheet, plain standard quality	@	62 @	60 @
*Hevea plain or smooth smoked sheets	@	60 @	58 @
Unsmoked sheet, standard quality	@	48 @	46 @
*Hevea unsmoked sheets.....	@	46 @	44 @
Colombo scrap, No. 1.....	@	48 @	46 @
Colombo scrap, No. 2.....	@	46 @	44 @
BRAZILIAN PARAS—			
Upriver fine	83 @	66½ @	63½ @ 64
Upriver medium	@	61 @	59 @ 60
Upriver coarse	47 @	46 @	43½ @ 44
Upriver weak fine.....	@	57 @	56 @
Upriver caucho ball.....	47 @	41 @	39 @
Islands fine	72 @	55 @	50 @ 51
Islands medium	@	52 @	46 @ 47
Islands coarse	31½ @	29 @	27½ @ 28
Cametá	31 @	30 @	28 @ 29
Lower caucho ball.....	45 @	38 @	36 @ 37
Peruvian fine	@	@	59 @ 60
Tapajos fine	@	@	60 @ 61
Tapajos caucho ball.....	@	@	37 @ 38
AFRICANS—			
Accra flake, prime.....	33 @	28 @	28 @
Niger flake, prime.....	33 @	28 @	28½ @
Benguela, extra seconds, 28%.....	42½ @	36 @	36 @
Benguela, No. 2, 32½%.....	39 @	32 @	32 @
Congo prime, black upper.....	56 @	46 @	55 @ 57
Congo prime, red upper.....	54 @	44 @	53 @ 55
Rio Nunez ball.....	55 @ 56	@	**63 @ 66
Rio Nunez sheets and strings.....	@	@	**63 @
Conakry niggers	55 @ 56	@	**62 @
Massai sheets and strings.....	54 @ 55	@	**62 @
CENTRALS—			
Corinto	45 @	41 @	41 @
Esmeralda sausage	44 @	46 @	40 @
Central scrap	43 @	40 @	38 @ 39
Central scrap and strip.....	43 @	36 @	37½ @ 38
Central wet sheet.....	32 @	28 @	27 @ 29
Guayule	33 @ 35	32 @	26 @ 29

MANICOBAS—

Ceara negro heads.....	@	46 @	44 @44½
Ceara scrap.....	@	28 @	28 @
Manicoba special.....	36 @	39 @	40 @41
Manicoba extra.....	@	35 @	35 @37
Manicoba regular.....	@	32 @	32 @33
Mangabeira thin sheet.....	31 @	37 @	35 @38
Mangabeira thick sheet.....	@	32 @	32 @

BALATA—

Block, Ciudad Bolivar.....	@	@	67 @68
Columbian.....	@	@	49 @50
Panama.....	@	@	47½ @48
Surinam sheet.....	69 @	77 @	77 @78

EAST INDIAN—

Assam crepe.....	41 @	61 @	56 @
Assam onions.....	@	56 @	**52 @
Penang block scrap.....	@	38 @	43 @
Pontianak pressed.....	8½ @	20 @	21 @25
Bandjermassin.....	@	12 @	12½ @13
Gutta Siak.....	13 @	20 @	20 @
Gutta percha, red Macassar.....	1.88 @	2.00 @	1.98 @ 2.10

*Rubber Association of America nomenclature.

**Nominal.

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

"The demand for commercial paper has been very light during October on account of Liberty Loan matters occupying the attention of bankers very largely, and for such demand as there has been the best rubber names have ruled at 6 per cent, and those not so well known 6½ @ 6¾ per cent."

COMPARATIVE HIGH AND LOW RUBBER PRICES.

Plantation:	September,		
	1917.*	1916.	1915.
First latex crepe.....	\$0.66 @0.69	\$0.57 @0.63	\$0.57½ @0.61
Smoked sheet ribbed.....	.65 @.67	.56½ @.62½	.57½ @.61
Paras:			
Upriver, fine.....	.67 @.69	.71 @.73	.55 @.56
Upriver, coarse.....	.46½ @.48½	.42½ @.44	.42 @.42½
Islands, fine.....	.56 @.58	.60 @.65	.50 @.50
Islands, coarse.....	.29 @.30	.28 @.31	.26½ @.26½
Cameta.....	.30 @.31	.32 @.33½	.28½ @.28½

*Figured only to September 29.

Plantation:	October,		
	1917.*	1916.	1915.
First latex crepe.....	\$0.62½ @0.65½	\$0.60 @0.65½	\$0.60½ @0.62½
Smoke sheet ribbed.....	.61 @.64½	.59½ @.64½	.60½ @.62½
Paras:			
Upriver, fine.....	.64 @.66½	.71 @.83	.54½ @.57½
Upriver, coarse.....	.43 @.46	.43 @.47	.42 @.45
Islands, fine.....	.51 @.55	.65 @.65	.51½ @.54
Islands, coarse.....	.27 @.29	.30 @.31	.26½ @.27½
Cameta.....	.28 @.30	.30½ @.32	.28½ @.29½

*Figured only to October 25.

MARKET CABLE SERVICE FROM LONDON.

The following market report has been cabled by Alden's Successors, Limited, London:

	Standard Crepe.	Ribbed Smoked Sheets.	Market.
September 24.....	34 d.	32½ d.	Firm
October 1.....	32½ d.	30¾ d.	Dull
October 8.....	33 d.	31 d.	Steady
October 15.....	31½ d.	29¾ d.	Quiet
October 22.....	32½ d.	30¾ d.	Firm

MARKET CABLE SERVICE FROM SINGAPORE.

The following reports of the weekly auctions held at Singapore have been cabled by The Waterhouse Co., Limited:

Date.	Crêpe, Price per lb.	Smoked Sheet, Price per lb.	Tons Sold.	Market.
September 28.....	cents 53.55	53.98	415	Slightly weaker, with less demand.
October 6.....	52.70	52.28	510	Dull and declining.
October 12.....	52.70	51.43	603	Slightly weaker, with less demand.
October 19.....	51.43	50.58	351	Dull at opening, but became stronger.

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [September 20, 1917]: The weekly rubber auction held yesterday and today was marked by a good general demand and an exceptionally large clearance, 805 tons having been sold out of 1,120 tons cataloged. The top price for fine ribbed smoked sheet was \$1 up at \$127 per picul, but this does not represent the extent of the advance, the average price for sheet being \$2 to \$3 better than last week. Fine pale crepe sold up to \$131, which is \$3 above last week's best. Brown and dark crepes were also in good demand, and shared in the general advance.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked.....	\$123 @127	2/6½ @2/ 7¼	52.28 @53.98
Sheet, good ribbed smoked.....	112 @122	2/4 @2/ 6½	47.60 @51.85
Sheet, plain smoked.....	106 @117	2/2¾ @2/ 5½	45.05 @49.73
Sheet, ribbed unsmoked.....	106 @110	2/2¾ @2/ 3¾	45.05 @46.75
Sheet, plain unsmoked.....	100 @110	2/1½ @2/ 3¾	42.50 @46.75
Crêpe, fine pale.....	128 @131	2/7¾ @2/ 8	54.40 @55.68
Crêpe, good pale.....	119 @127	2/5½ @2/ 7½	50.58 @53.98
Crêpe, fine brown.....	110 @117	2/3¾ @2/ 5½	46.75 @49.73
Crêpe, good brown.....	98 @108	2/1¼ @2/ 3¾	41.65 @45.90
Crêpe, dark brown.....	80 @100	1/9½ @2/ 1½	34.00 @42.50
Crêpe, bark.....	57 @ 96	1/4½ @2/ 0¾	24.23 @40.80
Scrap, virgin and pressed.....	32 @ 70	1/3¾ @1/ 7½	22.10 @29.75
Scrap, loose.....	70 @ 91	1/7¼ @1/11¼	29.75 @38.68

* Picul = 133½ pounds.

Quoted in S. S. dollars = 2/4 [56.7 cents.]

EXPORTS OF PARA RUBBER FROM PENANG.

JULY 19-AUGUST 2, 1917.

To—	POUNDS.	To—	POUNDS.
UNITED STATES:		EUROPE:	
Seattle.....	884,800	England—	
New York.....	282,240	London.....	201,600
Akron.....	35,840		
San Francisco.....	29,120		
Total.....	1,232,000		

IMPORTS AND EXPORTS OF RUBBER AND GUTTA AT SINGAPORE.

IMPORTS.

July 20-31, 1917.

From—	Para Rubber.	Para Rubber Treatment.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
Malay Peninsula—					
Port Swettenham...lbs.	700,777				
Malacca.....	464,835	84,056			
Penang.....	313,082				
Teluk Anson.....	264,936	5,586			
Muar.....	260,148				
Port Dickson.....	90,174				
Rengat.....	29,260				
Kuantan.....	20,482				
Dindings.....	7,581				
Kelantan.....	6,916				
Kota Baroe.....	3,059				
Pekan.....	2,128				
Totals.....	2,163,378	89,642			
Borneo—					
Sarawak.....	30,058	23,275	532	798	48,678
Labuan.....	22,743	2,793		266	34,979
Sibu.....	18,620		1,995	4,256	64,771
Sandakan.....	17,689				
Singawang.....	15,162				
Sambas.....	13,167				
Jessellton.....	10,374	34,181	266		
Bandjermassin.....	9,576	16,625		14,231	29,260
Passir.....	4,389				
Samarinda.....	2,394				
Pontianak.....		4,256			
Totals.....	144,172	81,130	2,793	19,551	177,688
Sumatra—					
Djambi.....	128,212				
Deli.....	18,221	11,172			
Belawan.....	17,157	55,727			
Palembang.....	9,044				
Indragiri.....	6,916	12,768			
Siak.....	2,394				
Muntok.....	1,995				
Totals.....	183,939	79,667			
Java—					
Soerabaya.....	22,211			22,211	
Samarang.....	399				
Totals.....	22,610			22,211	

Burma—					
Mergui.....	15,960				
Siam—					
Bangkok.....	1,330				
Other ports.....	40,432	38,969	4,788	5,187	
Grand Totals...	2,571,621	289,408	7,581	46,949	177,688

EXPORTS.

July 20-31, 1917.

To—	Para Rubber.	Para Rubber Trans-shipped.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
NORTH AMERICA:					
United States—					
New York	3,009,258	465,899		56,126	234,612
EUROPE:					
United Kingdom—					
England—					
London	44,023				
Grand Totals	3,053,281	465,899		56,126	234,612

IMPORTS.

August 1-31, 1917.

From—	Para Rubber.	Para Rubber Treatment.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
Malay Peninsula—					
Port Swettenham	2,415,812				
Teluk Anson	1,549,184	63,441			
Muar	1,026,534				
Malacca	940,443	690,403			
Penang	760,494	177,023			
Port Dickson	289,275				
Kelantan	278,369	15,694			
Kuantan	67,928				
Rengat	50,806				
Kota Baroe	5,054				
Pahang	3,591				
Tringgau	133				
Totals	7,387,623	946,561			
Borneo—					
Pontianak	350,189		2,527	13,167	58,387
Jesseltown	109,459	334,628			
Sarakaw	87,647	30,191	798	14,497	280,497
Sambas	67,830				1,596
Bandjermassin	58,407	33,383		86,051	36,575
Sibu	55,195		1,729	11,837	153,083
Sandakan	40,698	36,442	532	399	
Labuan	38,570	11,970		2,926	32,319
Kudat	30,989	28,063	133		
Singawang	8,645				
Passir	8,379				
Samarinda	1,330		665	4,389	
Sampit	798			665	129,010
Totals	858,136	474,677	6,384	133,931	691,467
Sumatra—					
Djambi	366,282				
Deli	99,218				
Palembang	21,014		798	26,467	
Belawan	15,029	12,236			
Indragiri	13,832				
Muntok	5,719				
Asahan	5,187				
Bengkalis	5,187				
Siak	1,729	11,970			
Totals	533,197	24,206	798	26,467	
Java—					
Batavia	49,476				
Soerabaja	45,486				
Total	94,962				
Siam—					
Bangkok	1,330				
Patani	532				
Total	1,862				
Burma—					
Rangoon	532				
Other ports	326,382	36,043	6,783	22,477	335,293
Grand Totals	9,202,694	1,681,487	13,965	182,875	1,026,760

EXPORTS.

August 1-31, 1917.

To—	Para Rubber.	Para Rubber Trans-shipped.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
NORTH AMERICA:					
United States—					
New York	5,929,140	939,645		147,231	190,057
Akron	5,059,054	848,540		169,841	
Seattle	751,716	336,357		44,688	457,254
Watertown	225,701				
San Francisco	178,885	6,517		253,395	
Boston	8,911				
Totals	12,153,407	2,131,059		615,155	647,311
Canada—					
Toronto	275,044	67,032			
Montreal	212,268				
Granby	26,866				
Other ports	355,110				
Totals	869,288	67,032			
EUROPE:					
United Kingdom—					
England—					
London	1,096,186	718,732		407,113	
ASIA:					
Siberia—					
Vladivostok	82,593				
Grand Totals	14,201,474	2,916,823		1,022,268	647,311

IMPORTS OF RAW RUBBER AT CEYLON.

JULY 16-AUGUST 20, 1917.

From—	POUNDS.	From—	POUNDS.
MALAY PENINSULA:		INDIA:	
Singapore	67,240	Tuticorin	122,447
Port Swettenham	105,908	Calicut	4,813
Total	173,148	Total	127,260
Grand total	300,408		

PLANTATION RUBBER EXPORTS FROM JAVA.

To—	June 1916.	June 1917.	Six Months Ending June 1916.	Six Months Ending June 1917.
HOLLAND:				
Hevea			215,040	
GREAT BRITAIN:				
Ficus	10,305	3,949	18,775	8,520
Hevea	967,680	159,040	3,400,320	2,331,840
Ceara	32,364	5,799	48,792	18,507
Castilloa	9,774	10,824	28,606	24,097
Totals	1,020,123	179,612	3,496,493	2,382,964
UNITED STATES:				
Ficus			32,087	2,579
Hevea	949,760	3,333,120	7,546,560	17,734,080
Ceara			11,114	184
Castilloa				11,143
Totals	949,760	3,333,120	7,589,761	17,747,986
SINGAPORE:				
Ficus	3,520	2,834	24,239	11,673
Hevea	306,880	165,760	2,078,720	1,682,240
Ceara	2,090	1,188	20,105	28,648
Castilloa	880		3,246	3,406
Totals	313,370	169,782	2,126,310	1,725,967
OTHER COUNTRIES:				
Ficus			2,792	
Hevea	62,720		273,280	20,160
Totals	62,720		276,072	20,160

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the records.

[The Figures Indicate Weight in Pounds.]

PARAS.

Fine. Medium. Coarse. Caucho. Cameta. Totals.

SEPTEMBER 8.—By the steamer <i>Talisman</i> from Pará:					
Pell & Dumont	7,500				7,500
Hagemeyer & Brunn	31,360	4,480	5,600	40,320	11,200 = 92,960
SEPTEMBER 11.—By the steamer <i>Minas Geraes</i> from Pará:					
Hagemeyer Trading Co.			11,200		11,200
Hagemeyer & Brunn	22,400	11,200	6,720	24,640	64,960
Pell & Dumont	42,000		39,000	31,000	112,000
SEPTEMBER 14.—By the steamer <i>Sergipe</i> from Pará and Manaos:					
Hagemeyer & Brunn	2,240		11,200	16,040	29,480
Pell & Dumont			11,000		11,000
SEPTEMBER 22.—By the steamer <i>Guajara</i> from Pará and Manaos:					
Pell & Dumont	19,000		25,000	93,000	137,000
General Rubber Co.	78,000		4,500		82,500
Aldens' Successors, Ltd.	13,800	400	1,400		15,600
Müller, Schall & Co.	595		346	8,203	9,144
	*10,124		*4,105	*8,675	*22,904
SEPTEMBER 29.—By the steamer <i>Vindegen</i> from Pará, Manaos and Iquitos:					
Aldens' Successors, Ltd.	17,500	3,700	3,600	13,700	38,500
H. A. Astlett & Co.	98,560	13,440	54,880	28,560	195,440
Pell & Dumont	33,000	1,500	41,000	59,000	134,500
General Rubber Co.	57,200		28,600		85,800
Hagemeyer & Brunn	11,200		8,960	2,240	22,400
Meyer & Brown	50,800	2,100			52,900
W. R. Grace & Co.	29,300		6,000		35,300
Henderson & Korn	42,160	3,200	12,000	3,200	60,560
OCTOBER 4.—By the steamer <i>Sao Paulo</i> from Pará:					
H. A. Astlett & Co.	32,480	7,000	23,940	8,600	62,020
Hagemeyer & Brunn	12,600				12,600
Pell & Dumont	1,000		1,400		2,400
Arnold & Zeiss	60,000	4,500	8,000	80,000	152,500
Meyer & Brown	28,300	1,000	10,900		40,200
W. R. Grace & Co.	6,800	400			7,200
Henderson & Korn	20,300		39,600		59,900
OCTOBER 20.—By the steamer <i>Curvello</i> from Pará and Manaos:					
Aldens' Successors, Ltd.	4,400	400	500	26,000	31,300
Pell & Dumont	27,000		26,000	11,000	64,000
Arnold & Zeiss	161,000	6,800	50,000	82,000	299,800
Meyer & Brown	110,400	6,800	24,800		142,000
Müller, Schall & Co.	15,646	510	3,053	4,438	23,647
H. A. Astlett & Co.	131,100	12,200	77,800	13,100	234,200
Henderson & Korn	39,800	1,200	11,300	12,200	64,500

* Bolivian.

PLANTATIONS.
TO NEW YORK.

	POUNDS.
SEPTEMBER 3.—By the <i>Carpattia</i> =London:	
Charles T. Wilson Co., Inc.....	56,000
SEPTEMBER 3.—By the <i>Kawachi Maru</i> =Singapore:	
Charles T. Wilson & Co., Inc.....	33,600
SEPTEMBER 12.—By the <i>Eurymedon</i> =Singapore:	
Charles T. Wilson Co., Inc.....	47,000
J. T. Johnstone & Co.....	388,380
SEPTEMBER 13.—By the <i>Karimata</i> =Batavia:	
J. T. Johnstone & Co.....	106,440
SEPTEMBER 15.—By the <i>City of Agra</i> =Colombo:	
Charles T. Wilson Co., Inc.....	51,520
J. T. Johnstone & Co.....	156,460
SEPTEMBER 17.—By the <i>Aspinett</i> =Colombo:	
Charles T. Wilson Co., Inc.....	62,720
J. T. Johnstone & Co.....	17,500
SEPTEMBER 20.—By the <i>Andania</i> =London:	
Charles T. Wilson Co., Inc.....	9,000
SEPTEMBER 24.—By the <i>Lancastrian</i> =Liverpool:	
Aldens' Successors, Ltd.....	224,100
SEPTEMBER 24.—By the <i>Columbia</i> =Penang: (Coastwise from Seattle)	
J. T. Johnstone & Co.....	18,804
SEPTEMBER 24.—By the <i>Rotti</i> =Soerabaya:	
Hagemeyer Trading Co.....	47,600
J. T. Johnstone & Co.....	234,100
Fred Stern & Co.....	6,720
Meyer & Brown.....	36,000
SEPTEMBER 25.—By the <i>Taurus</i> =Singapore:	
J. T. Johnstone & Co.....	24,200
SEPTEMBER 25.—By the <i>Kumeric</i> =Singapore:	
J. T. Johnstone & Co.....	2,600
SEPTEMBER 25.—By the <i>Kandahar</i> =Colombo:	
J. T. Johnstone & Co.....	2,240
SEPTEMBER 26.—By the <i>Bowcan</i> =Batavia:	
J. T. Johnstone & Co.....	95,400
SEPTEMBER 28.—By the <i>Suruga</i> =Singapore:	
Charles T. Wilson Co., Inc.....	389,760
General Rubber Co.....	889,300
J. T. Johnstone & Co.....	185,600
Fred Stern & Co.....	87,360
Arnold & Zeiss.....	38,000
Meyer & Brown.....	71,000
Aldens' Successors, Ltd.....	50,900
W. R. Grace & Co.....	75,000
Rubber Trading Co.....	96,320
Henderson & Korn.....	292,600
OCTOBER 1.—By the <i>Bankoku Maru</i> =Singapore: (Coastwise from Seattle)	
J. T. Johnstone & Co.....	6,720
OCTOBER 6.—By the <i>Radja</i> =Batavia:	
General Rubber Co.....	450,300
J. T. Johnstone & Co.....	256,880
Hagemeyer Trading Co.....	147,840
Fred Stern & Co.....	44,800
Arnold & Zeiss.....	33,000
Meyer & Brown.....	194,600
W. R. Grace & Co.....	67,100
Henderson & Korn.....	52,200
OCTOBER 8.—By the <i>St. Paul</i> =Liverpool:	
Aldens' Successors, Limited.....	338,500
OCTOBER 11.—By the <i>Oolabaria</i> =Colombo:	
J. T. Johnstone & Co.....	16,000
OCTOBER 15.—By the <i>Panama Maru</i> =Singapore: (Coastwise from Seattle)	
J. T. Johnstone & Co.....	11,220
OCTOBER 17.—By the <i>Foyle</i> =London:	
Charles T. Wilson Co., Inc.....	36,000
OCTOBER 17.—By the <i>Nisiam</i> =London:	
Charles T. Wilson Co., Inc.....	82,000
NO DATES GIVEN.	
By the <i>Karmala</i> =London:	
Rubber Trading Co.....	22,400
By the <i>Manhattan</i> =London:	
Rubber Trading Co.....	22,400
By the <i>City of Manchester</i> =Colombo:	
Rubber Trading Co.....	30,000

AFRICANS.

OCTOBER 13.—By the <i>St. Paul</i> =England:	
Fred Stern & Co.....	22,400
By the <i>Aurania</i> =Liverpool:	
Rubber Trading Co.....	22,800

GUAYULE.

SEPTEMBER 27.—By the <i>El Sud</i> =Galveston:	
Continental Rubber Co. of New York...	61,000

PONTIANAK.

SEPTEMBER 24.—By the <i>Rotti</i> =Batavia:	
Hagemeyer Trading Co.....	331,520
OCTOBER 6.—By the <i>Radja</i> =Batavia:	
Hagemeyer Trading Co.....	141,120

CRUDE RUBBER ARRIVALS AT
SEATTLE AND TACOMA.

PLANTATION.

[Figured 135 pounds net to the case.]

TO AKRON, OHIO.

	POUNDS.
SEPTEMBER 24.—By the <i>Louise Neilson</i> =Singapore:	
J. T. Johnstone & Co.....	51,165
Goodyear Tire & Rubber Co....	416,475 467,640
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
Goodyear Tire & Rubber Co....	184,275
*OCTOBER 1.—By the <i>Chicago Maru</i> =Yokohama:	
The B. F. Goodrich Co.....	215,325
Goodyear Tire & Rubber Co....	43,065
Firestone Tire & Rubber Co....	2,295 260,685
OCTOBER 8.—By the <i>Tokima Maru</i> =Yokohama:	
Goodyear Tire & Rubber Co.....	21,600
OCTOBER 13.—By the <i>Tenaho Maru</i> =Kobe:	
Goodyear Tire & Rubber Co.....	9,720
*OCTOBER 15.—By the <i>Mexico Maru</i> =Yokohama:	
The B. F. Goodrich Co.....	220,995
Goodyear Tire & Rubber Co....	48,465 269,460
TO NEW YORK, N. Y.	
SEPTEMBER 24.—By the <i>Louise Neilson</i> =Singapore:	
Charles T. Wilson & Co.....	24,165
J. T. Johnstone & Co.....	127,980
East Asiatic Co.....	21,465
Aldens' Successors, Limited.....	50,895
L. Littlejohn & Co.....	154,980
Arthur Meyer & Co.....	76,545
Robinson & Co.....	104,220
Rubber Trading Co.....	31,995
William H. Stiles & Co.....	26,460
Henderson & Korn.....	197,505
Fred Stern & Co.....	29,565
Hagemeyer Trading Co.....	15,120 860,895
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
J. T. Johnstone & Co.....	49,140
Rubber Trading Co.....	21,735
Fred Stern & Co.....	15,930
Aldens' Successors, Limited.....	14,850
Robinson & Co.....	61,695
Arthur Meyer & Co.....	50,760
East Asiatic Co.....	26,190
L. Littlejohn & Co.....	82,620
United States Rubber Co.....	74,115
Charles T. Wilson Co.....	9,045 406,080
*OCTOBER 1.—By the <i>Chicago Maru</i> =Yokohama:	
Henderson & Korn.....	69,795
L. Littlejohn & Co.....	35,775
East Asiatic Co.....	13,770 119,340
OCTOBER 8.—By the <i>Tokima Maru</i> =Yokohama:	
General Rubber Co.....	81,000
*OCTOBER 10.—By the <i>Kenkon Maru</i> =Singapore:	
Rubber Trading Co.....	41,040
Hagemeyer Trading Co.....	13,635
William H. Stiles & Co.....	599,670
Arnold & Zeiss.....	467,370
Edward Maurer & Co.....	181,575
Fred. Stern & Co.....	157,140
Charles T. Wilson Co., Inc.....	58,320
Arthur Meyer & Co.....	2,025
Mr. Meyer.....	7,290
Curry & Phillips.....	10,935
Henderson & Korn.....	87,750
L. Littlejohn & Co.....	1,176,120 2,802,870
OCTOBER 13.—By the <i>Tenaho Maru</i> =Kobe:	
Aldens' Successors, Limited.....	6,345
*OCTOBER 15.—By the <i>Mexico Maru</i> =Yokohama:	
Charles T. Wilson Co.....	2,160
Henderson & Korn.....	111,240
W. R. Grace & Co.....	36,180
L. Littlejohn & Co.....	7,155
J. T. Johnstone & Co.....	6,210
Rubber Trading Co.....	5,265
East Asiatic Co.....	18,630 186,840

TO SEATTLE, WASH.

	POUNDS.
SEPTEMBER 24.—By the <i>Louise Neilson</i> =Singapore:	
Aldens' Successors, Ltd.....	15,525
The B. F. Goodrich Co.....	727,920
Robinson & Co.....	27,270
W. R. Grace & Co.....	41,985
L. Littlejohn & Co.....	97,065
Arthur Meyer & Co.....	49,680
Henderson & Korn.....	69,120
J. T. Johnstone & Co.....	29,835
Meyer & Brown.....	26,325
Goodyear Tire & Rubber Co....	25,920 1,110,645
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
Henderson & Korn.....	23,220
J. T. Johnstone & Co.....	46,845
L. Littlejohn & Co.....	19,440
The B. F. Goodrich Co.....	667,305
Arthur Meyer & Co.....	7,020
W. R. Grace & Co.....	57,510
Balfour Guthrie & Co.....	220,185
East Asiatic Co.....	2,025 1,043,550
SEPTEMBER 28.—By the <i>War Siren</i> =Yokohama:	
H. B. M. Consul General.....	76,545
OCTOBER 8.—By the <i>Tokima Maru</i> =Yokohama:	
J. T. Johnstone & Co.....	18,225
*OCTOBER 10.—By the <i>Kenkon Maru</i> =Singapore:	
United States Rubber Co.....	216,000
Fred Stern & Co.....	18,495
Raw Products Co.....	23,625
Goodyear Tire & Rubber Co....	9,450
L. Littlejohn & Co.....	169,830
Robinson & Co.....	152,955 590,355
OCTOBER 13.—By the <i>Tenaho Maru</i> =Kobe:	
Meyer & Brown.....	3,105
TO BOWMANVILLE, CANADA (via Seattle).	
*OCTOBER 10.—By the <i>Kenkon Maru</i> =Singapore:	
Goodyear Tire & Rubber Co.....	43,335
TO VANCOUVER, B. C.	
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
Charles T. Wilson Co.....	55,755
Hood Rubber Co.....	134,730
Goodyear Tire & Rubber Co....	64,530
L. Littlejohn & Co.....	80,865
United States Rubber Co.....	593,460 929,340
PONTIANAK.	
TO SEATTLE, WASH.	
SEPTEMBER 24.—By the <i>Louise Neilson</i> =Singapore:	
L. Littlejohn & Co. (gutta jelutong).....	236,655
L. Littlejohn & Co. (gutta percha).....	33,480 270,135
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
L. Littlejohn & Co. (gutta percha).....	62,235
L. Littlejohn & Co. (gutta jelutong).....	106,110
United Malaysian Rubber Co. (gutta untreated).....	76,275 244,620
TO NEW YORK, N. Y.	
SEPTEMBER 24.—By the <i>Louise Neilson</i> =Singapore:	
United Malaysian Rubber Co.....	202,770
TO VANCOUVER, B. C.	
*SEPTEMBER 25.—By the <i>Mayachi Maru</i> =Singapore:	
L. Littlejohn & Co. (gutta percha).....	28,620
*Arrived at Tacoma.	

CRUDE RUBBER ARRIVALS AT
SAN FRANCISCO.

[Figured 135 pounds net to the case.]

PLANTATIONS.

	POUNDS.
SEPTEMBER 12.—By the <i>Venezuela</i> =Hongkong:	
Gravenhorst & Co.....	7,290
SEPTEMBER 12.—By the <i>Venezuela</i> =Short-shipped Columbia:	
William H. Stiles & Co.....	4,590
Edward Maurer & Co.....	10,125
L. Littlejohn & Co.....	29,835 44,550

SEPTEMBER 14.—By the *Tjikembang*—Batavia:

Firestone Tire & Rubber Co.	186,030
The B. F. Goodrich Co.	291,060
H. B. M. Consul General.	369,495
Crocker National Bank.	15,255
L. Littlejohn & Co.	60,210
Lilienthal, Levy & Co.	1,620
Kuh & Valk.	166,590
G. W. Luce.	11,205
Arnold & Zeiss.	187,110
W. J. Byrnes.	52,785
Total	1,341,360

SEPTEMBER 20.—By the *Nippon Maru*—Singapore:

Henderson & Korn.	50,355
East Asiatic Co.	1,620
Total	51,975

SEPTEMBER 29.—By the *Vondel*—Batavia:

Raw Products Co.	28,485
Rubber Trading Co.	33,075
Hadden & Co.	41,850
Firestone Tire & Rubber Co.	166,725
H. B. M. Consul General.	126,900
Arnold & Zeiss.	94,500
Bowers' Rubber Works.	8,910
Savage Tire Co.	14,175
Henry W. Peabody & Co.	29,700
Edward Maurer & Co.	50,490
Meyer & Brown.	119,880
W. R. Grace & Co.	21,870
Mitsui & Co., Limited.	147,270
British Bank of South America.	89,100
William H. Stiles & Co.	18,090
T. Greidanus.	16,875
L. Littlejohn & Co.	78,570
G. Amsinck & Co.	19,035
W. Hammesfahr.	23,895
Total	982,395

SEPTEMBER 29.—By the *Shinyo Maru*—Kobe:

J. T. Johnstone & Co.	139,320
Goodyear Tire & Rubber Co.	890
The B. F. Goodrich Co.	197,910
Robert Badenhop & Co.	184,005
Rubber Trading Co.	51,570
William H. Stiles.	69,255
L. Littlejohn & Co.	143,640
Henderson & Korn.	140,805
Total	928,395

SEPTEMBER 28.—By the *Colusa*—Hongkong:

Rubber Trading Co.	99,020
Raw Products Co.	42,660
L. Littlejohn & Co.	22,680
Fred. Stern & Co.	147,255
W. R. Grace & Co.	26,325
J. T. Johnstone & Co.	3,780
Arthur Meyer & Co.	107,055
The B. F. Goodrich Co.	2,700
Goodyear Tire & Rubber Co.	703,485
Robinson & Co.	42,390
Charles T. Wilson Co., Inc.	5,670
Total	1,235,180

OCTOBER 1.—By the *China*—Hongkong:

United States Rubber Co.	333,180
Peninsular Trading Co.	42,120
Winters Son & Co.	24,165
Rubber Trading Co.	45,630
William H. Stiles.	48,735
Edward Maurer & Co.	95,175
Hadden & Co.	42,120
Meyer & Brown.	34,020
Mansfield Tire & Rubber Co.	91,125
Eugene Boissevain & Co.	71,955
L. Littlejohn & Co.	20,580
W. R. Grace & Co.	41,985
Total	1,073,790

OCTOBER 5.—By the *Unkai Maru*—Kobe:

J. T. Johnstone & Co.	37,800
Goodyear Tire & Rubber Co.	44,820
Henderson & Korn.	9,450
L. Littlejohn & Co.	42,390
Total	134,460

OCTOBER 5.—By the *Shinyo Maru*—Hongkong:

J. T. Johnstone & Co.	3,375
Henderson & Korn.	98,685
Goodyear Tire & Rubber Co.	3,105
Total	105,165

OCTOBER 11.—By the *Oranje*—Batavia:

General Rubber Co.	78,840
J. T. Johnstone & Co.	6,750
Henderson & Korn.	40,500
National City Bank of New York	77,220
Goodyear Tire & Rubber Co.	30,510
Meyer & Brown.	39,960
Raw Products Co.	23,625
Equitable Trust Co.	87,210
William H. Stiles & Co.	42,525
Total	427,140

OCTOBER 11.—By the *Wachusett*—Hongkong:

L. Littlejohn & Co.	324,000
Total	324,000

OCTOBER 13.—By the *Arakan*—Batavia:

J. T. Johnstone & Co.	19,575
L. Littlejohn & Co.	32,535
Wells Fargo Nevada National Bank.	22,680
The B. F. Goodrich Co.	98,685
Meyer & Brown.	97,605
Arnold & Zeiss.	132,975
H. B. M. Consul General.	280,800
Robinson & Co.	88,290
Kuh & Valk.	24,300
Frank P. Dae.	20,385
E. Greidanus.	49,410
Goodyear Tire & Rubber Co.	148,770
Edward Maurer & Co.	21,330
G. Amsinck & Co.	8,775
Total	1,046,115

OCTOBER 16.—By the *Sierra*—Sydney:

Goodyear Tire & Rubber Co.	405
Total	405

OCTOBER 19.—By the *Persia Maru*—Penang:

J. T. Johnstone & Co.	58,860
W. R. Grace & Co.	80,190
Total	139,050

Raw Products Co.

Raw Products Co.	22,680
Robinson & Co.	48,870
Goodyear Tire & Rubber Co.	75,870
Meyer & Brown.	50,490
L. Littlejohn & Co.	58,590
William H. Stiles & Co.	62,640
Winters Son & Co.	53,325
Edward Maurer & Co.	4,590
Smith & Schipper.	26,730
Charles T. Wilson Co., Inc.	122,040
Rubber Trading Co.	6,480
Fred. Stern & Co.	3,510
Aldens' Successors, Limited.	45,225
Arthur Meyer & Co.	3,510
Henderson & Korn.	24,300
Total	747,900

Short-shipped *Shinyo* and *Hudson Maru*:

J. T. Johnstone & Co.	270
Henderson & Korn.	3,780
Total	4,050

OCTOBER 20.—By the *Telamon*—Penang:

Henderson & Korn.	9,855
Robinson & Co.	46,305
L. Littlejohn & Co.	135,405
Fred. Stern & Co.	42,930
Rubber Trading Co.	31,050
Arthur Meyer & Co.	10,530
J. T. Johnstone & Co.	56,295
The B. F. Goodrich Co.	623,970
Goodyear Tire & Rubber Co.	13,230
William H. Stiles & Co.	20,385
Edward Maurer & Co.	21,195
Total	1,011,150

OCTOBER 11.—By the *Wachusett*—Hongkong:

L. Littlejohn & Co. (Gutta Siak)	60,075
Total	60,075

OTHER PACIFIC COAST ARRIVALS.

AUGUST 28.—By the *Keishin Maru*—Singapore:

General Rubber Co.	814,900
Total	814,900

SEPTEMBER 9.—By the *Kenkon Maru*—Yokohama:

Fred. Stern & Co.	212,800
Total	212,800

SEPTEMBER 12.—By the *Thordius*—Colombo:

General Rubber Co.	624,900
Total	624,900

SEPTEMBER 17.—By the *Komakata Maru*—Colombo:

Charles T. Wilson Co., Inc.	33,600
Hagemeyer Trading Co.	20,160
Total	53,760

SEPTEMBER 17.—By the *Empress of Russia*—Singapore:

General Rubber Co.	224,000
Total	224,000

SEPTEMBER 21.—By the *Nippon Maru*—Singapore:

Henderson & Korn.	65,600
Total	65,600

SEPTEMBER 24.—By the *Louise Neilson*—Singapore:

General Rubber Co.	736,900
Aldens' Successors, Ltd.	11,200
Henderson & Korn.	292,400
Total	1,040,500

SEPTEMBER 25.—By the *Keishin Maru*—Yokohama:

Meyer & Brown.	195,000
Total	195,000

SEPTEMBER 28.—By the *Vondel*—Batavia:

Arnold & Zeiss.	200,000
Meyer & Brown.	122,100
Total	322,100

SEPTEMBER 28.—By the *Van Waerwijck*—Batavia:

Fred. Stern & Co.	56,000
Total	56,000

SEPTEMBER 28.—By the *Colusa*—Hongkong:

Henderson & Korn.	124,900
Total	124,900

SEPTEMBER 28.—By the *Mayacki Maru*—Yokohama:

Henderson & Korn.	38,200
Total	38,200

SEPTEMBER 30.—By the *China*—Singapore:

Meyer & Brown.	33,600
Total	33,600

OCTOBER 1.—By the *Shinyo Maru*—Far East:

Henderson & Korn.	211,200
Total	211,200

OCTOBER 2.—By the *Chicago Maru*—Far East:

Henderson & Korn.	156,200
Total	156,200

OCTOBER 11.—By the *Kenkon Maru*—Colombo:

Henderson & Korn.	96,500
Arnold & Zeiss.	520,000
Total	616,500

OCTOBER 13.—By the *Mount Eagle*—Colombo:

Arnold & Zeiss.	80,000
Meyer & Brown.	140,000
Total	220,000

OCTOBER 13.—By the *Arakan*—Batavia:

Arnold & Zeiss.	180,000
Meyer & Brown.	270,000
Total	450,000

OCTOBER 13.—By the *Oranje*—Batavia:

Meyer & Brown.	33,600
Henderson & Korn.	62,000
Total	95,600

OCTOBER 13.—By the *Mexico Maru*—Yokohama:

Henderson & Korn.	152,100
Total	152,100

OCTOBER 16.—By the *Panama Maru*—Yokohama:

Fred. Stern & Co.	33,600
Total	33,600

OCTOBER 18.—By the *Thor*—Far East:

Meyer & Brown.	22,000
Fred. Stern & Co.	58,240
Total	80,240

OCTOBER 20.—By the *Persia Maru*—Singapore:

Meyer & Brown.	56,000
Henderson & Korn.	152,000
Total	208,000

OCTOBER 25.—By the *Koningin der Nederlanden*—Batavia:

Henderson & Korn.	132,600
Total	132,600

By the *Bankoku Maru*—Singapore:

Rubber Trading Co.	21,060
Total	21,060

By the *Empress of Ana*—Far East:

Fred. Stern & Co.	35,840
Total	35,840

By the *Kera Maru*—Singapore:

Rubber Trading Co.	4,480
Total	4,480

By the *Columbia*—Singapore:

Rubber Trading Co.	11,200
Total	11,200

CUSTOM HOUSE STATISTICS.

PORT OF BOSTON, MASS.—AUGUST, 1917.

IMPORTS:	POUNDS.	VALUE.
India rubber	291,636	\$168,245
Rubber scrap	53,726	3,872
Manufactures of india rubber		1,949
Total		\$174,066

EXPORTS:

Rubber scrap	2,946	\$884
India rubber boots	14,885	35,312
India rubber shoes	30,255	14,493
Automobile tires		1,070
Other rubber tires		57
Belting, hose, etc.		1,047
Druggists' sundries		1,264
All other manufactures of india rubber		2,176
Total		\$56,303

PORT OF BOSTON, MASS.—SEPTEMBER, 1917.

IMPORTS:	POUNDS.	VALUE.
India rubber	316,837	\$159,375
Manufactures of india rubber		3,243
Total		\$162,618

EXPORTS:

India rubber boots—pairs:		
To—		
England	6,615	\$13,933
Canada	2,323	7,479
Newfoundland	5,716	14,313
Totals	14,654	\$35,725

India rubber shoes—pairs:

To—		
England	29,268	\$13,453
Canada	264	202
Mexico	48	69
Newfoundland	6,964	4,242
Totals	36,544	\$17,966

Automobile tires:

To—		
Canada		\$65
Total		\$65

Belting, hose and packing:

To—		
Canada		\$17
Cuba		77
Total		\$94

Druggists' sundries:

To—		
England		\$301
Canada		269
Newfoundland		6
Cuba		1,622
Total		\$2,198

PORT OF NEW ORLEANS, LA.—SEPTEMBER, 1917.		
IMPORTS:	POUNDS.	VALUE.
India rubber	20,290	\$10,473

PORT OF NEW YORK, N. Y.—AUGUST, 1917.		
IMPORTS:	POUNDS.	VALUE.
India rubber	21,641,094	\$12,122,981
Balata	354,498	187,847
Gutta percha	88,809	12,026
Gutta jelutong	1,173,360	78,368
Rubber scrap	1,552,117	116,317
Manufactures of india rubber		74,083
Total		\$12,591,622

EXPORTS:		
Rubber scrap	1,334	\$356
Reclaimed rubber	5,447	1,254
India rubber boots	57,339	197,907
India rubber shoes	23,463	19,381
Automobile tires	479,711	23,479
Other rubber tires		236,271
Belting, hose, etc.		236,271
All other manufactures of india rubber		191,494
Total		\$1,149,853

PORT OF PHILADELPHIA, PA.—AUGUST, 1917.		
EXPORTS:	POUNDS.	VALUE.
Manufactures of india rubber		\$3,250

PORT OF PHILADELPHIA, PA.—SEPTEMBER, 1917.		
EXPORTS:	POUNDS.	VALUE.
Manufactures of india rubber		\$400

PORT OF SAN FRANCISCO, CAL.—AUGUST, 1917.		
IMPORTS:	POUNDS.	VALUE.
India rubber	5,620,632	\$3,490,675
Gutta Siak	67,850	8,571
Rubber scrap	8,864	511
Manufactures of india rubber		1,095
Total		\$3,500,852

EXPORTS:		
Rubber scrap	787	\$28
India rubber boots	167	945
India rubber shoes	35,658	23,608
Automobile tires		162,669
Other rubber tires		18,643
Belting, hose, etc.		72,839
All other manufactures of india rubber		27,068
Total		\$305,800

PORTS OF SEATTLE AND TACOMA, WASHINGTON—AUGUST, 1917.		
IMPORTS:	POUNDS.	VALUE.

India rubber	9,927,420	\$5,987,250
Gutta percha	23,000	3,264
Rubber scrap	458,396	14,805
Gutta Siak	184,984	21,199
Totals	10,593,800	\$6,026,518

EXPORTS:		
India rubber boots	378	\$1,257
India rubber shoes	5,191	5,042
Automobile tires		11,122
Other rubber tires		1,067
Belting, hose, etc.		4,365
All other manufactures of india rubber		13,341
Total		\$36,194

STATISTICS OF CRUDE AND MANUFACTURED RUBBER AT THE PORT OF NEW YORK.

IMPORTS.

UNMANUFACTURED—August, 1917.		
	POUNDS.	VALUE.
India rubber—free:		
From—		
France	101,881	\$39,242
England	5,866,898	3,541,546
British Honduras	454	159
Costa Rica	2,821	1,520
Guatemala	9,557	1,911
Honduras	2,100	960
Nicaragua	12,943	6,283
Panama	30,748	13,786
Mexico	11,215	5,725
Brazil	2,728,898	992,279
Chile	3,875	1,400
Colombia	80,646	32,080
Ecuador	19,000	8,222
British Guiana	2,372	1,783
Peru	1,174,208	\$22,256
Venezuela	65,957	28,905
British India	74,743	45,702
Straits Settlements	8,111,783	4,796,937
British East Indies	1,281,272	820,180
Dutch East Indies	2,035,553	1,248,643
British Oceania	1,619	1,083
Philippine Islands	22,551	12,381
Totals	21,641,094	\$12,122,981

UNMANUFACTURED—August, 1917.		
	POUNDS.	VALUE.
Gutta percha—free:		
From—		
Straits Settlements	88,809	\$12,026
Gutta jelutong—dutiable:		
From—		
Straits Settlement	1,173,360	\$78,368
Balata—free:		
From—		
Costa Rica	2,200	\$1,101
Panama	143,534	61,809
Colombia	97,427	42,132
Ecuador	1,150	570
British Guiana	4,905	3,434
Dutch Guiana	102,736	77,508
Venezuela	2,546	1,293
Totals	354,498	\$187,847

RUBBER SCRAP—free:		
From—		
France	237,106	\$16,559
Italy	59,600	12,783
England	1,157,103	79,384
Panama	6,853	402
Mexico	4,182	347
Newfoundland	46,174	3,694
Jamaica	2,779	201
Cuba	46,710	2,933
Dominican Republic	610	14
Totals	1,552,117	\$116,317
Totals, unmanufactured	24,809,878	\$12,517,539

MANUFACTURED—India rubber—dutiable:		
From—		
France		\$558
Portugal		3
England		27,548
Scotland		919
Ireland		5
Canada		11,906
Ecuador		5,594
Straits Settlements		24,281
Dutch East Indies		6,653
Japan		616
Total		\$74,083

Gutta percha—dutiable:		
From—		
Scotland		\$1,123
India rubber substitutes—dutiable:		
From—		
Japan		\$677
Total, manufactured		\$75,880

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—August, 1917.		
	POUNDS.	VALUE.
Automobile tires:		
To—		
Italy		\$3,545
Portugal		3,436
Spain		2,385
England		8,073
Mexico		14,856
Cuba		93,348
Argentina		148,793
Brazil		23,381
Chile		23,574
Uruguay		14,658
British South Africa		95,752
Other countries		47,910
Total		\$479,711
All other tires		\$23,479
Belting		236,271
Rubber boots		57,339
Rubber shoes		23,463
Druggists' sundries		36,048
Rubber scrap		1,334
Reclaimed rubber		5,447
Other rubber manufactures		191,494
Total, manufactured		\$1,185,901

RUBBER STATISTICS FOR THE UNITED STATES.		
IMPORTS OF CRUDE AND MANUFACTURED RUBBER.		
July, 1917.		
UNMANUFACTURED—free:	POUNDS.	VALUE.
India rubber:		
From—		
United Kingdom	3,394,929	\$2,270,055
Central America	101,452	47,669
Mexico	46,393	20,360
Brazil	4,036,830	1,481,470
Peru	132,532	64,467
Other South America	403,603	181,884

MANUFACTURED—free: July, 1917.		
	POUNDS.	VALUE.
British East Indies	13,752,517	8,574,628
Dutch East Indies	4,483,038	2,981,366
Other countries	1,049,479	636,339
Totals	27,400,775	\$16,258,238
Balata	267,799	\$157,480
Guayule gum	569,445	156,574
*Gutta jelutong	4,236,707	191,784
Gutta percha	264,056	39,760

Totals		
	32,738,782	\$16,803,836
Rubber scrap	2,501,326	187,949
Totals, unmanufactured	35,240,108	\$16,991,785
Chicle	483,274	\$229,207

MANUFACTURED—dutiable:		
Manufactures of india rubber and gutta percha		\$91,316

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—July, 1917.		
	POUNDS.	VALUE.
Automobile tires:		
To—		
France		\$28,616
United Kingdom		20,993
Canada		142,460
Mexico		39,601
Cuba		59,771
Argentina		215,746
Brazil		22,682
British India		12,907
Dutch East Indies		20,038
Australia		6,088
New Zealand		32,105
Philippine Islands		18,040
British South Africa		117,123
Other countries		151,425
Total		\$891,595

All other tires		\$193,927
Belting, hose and packing		215,552
Rubber boots		68,110
Rubber shoes		59,885
Druggists' sundries		38,203
Scrap and old rubber		40,087
Reclaimed rubber		181,310
Other rubber manufactures		490,077
Total manufactured		\$1,990,693
Fountain pens		30,488
Total		\$2,021,181

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—July, 1917.		
	POUNDS.	VALUE.
Balata		
Gutta jelutong		
Gutta percha		
India rubber	448,587	\$224,952
Rubber scrap and refuse	220	60
Totals unmanufactured	448,587	\$225,012
Chicle	1,100	\$406
MANUFACTURED—		
India rubber		\$623

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—July, 1917.		
	POUNDS.	VALUE.
To—		
Alaska:		
Belting, hose and packing		\$12,281
Boots and shoes	7,894	18,338
Other rubber goods		9,155
Total		\$39,774
To—		
Hawaii:		
Belting, hose and packing		\$8,577
Automobile tires		71,403
Other tires		15,981
Other rubber goods		26,365
Total		\$122,326

To—		
Philippine Islands:		
Belting, hose and packing		\$4,966
Boots and shoes		2,813
Tires		27,790
Other rubber goods		11,630
Total		\$47,199

To—		
Porto Rico:		
Belting, hose and packing		\$2,633
Automobile tires		49,853
Other tires		1,421
Other rubber goods		9,912
Total		\$63,819

* Dutiable beginning July 1, 1916.

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS			
UNMANUFACTURED—free:			
	July, 1917.		
	Pounds.	Value.	
Rubber and gutta percha, crude caoutchouc or india rubber..	951,308	\$552,707	
Rubber, recovered	182,891	29,496	
Hard rubber, in sheets and rods.	14,272	9,456	
Rubber substitute	33,036	4,174	
Rubber, powdered and rubber or gutta percha waste	105,362	7,946	
Rubber thread, not covered....	1,708	2,516	
Chicle	313,807	143,879	
MANUFACTURES—dutiable:			
	General Tariff Value.	Preferential Tariff Value.	
Boots and shoes.....	\$11,245	\$6,759	
Belting	6,094		
Waterproof clothing	15,282	26,185	
Hose lined with rubber	13,879		
Mats and matting.....	316		
Packing	8,104		
Tires of rubber for all vehicles	265,476	2,636	
Rubber cement and all manufactures of india rubber and gutta percha—N. O. P.	75,373	11,930	
Hard rubber, unfinished, in tubes for fountain pens.....	16		
Webbing—over one inch wide.	7,933	145	
EXPORTS			
MANUFACTURED—			
	Produce of Canada.	Reexports of Foreign Goods.	
	Value.	Value.	
Belting	\$6,803		
Hose	3,719		
Boots and shoes.....	33,822	395	
Waterproof clothing	815	405	
Tires	59,100	4,771	
Waste	56,427		
All other, N. O. P.	5,239	\$66,393	
Chicle, crude	156,005		

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.			
August, 1917.			
	POUNDS.	£.	
UNMANUFACTURED—			
Crude rubber	9,745,600	1,159,668	
Waste and reclaimed rubber	53,000	1,493	
Gutta percha	600,544	85,626	
Totals	10,399,144	1,246,787	
MANUFACTURED—			
Apparel, waterproofed ...		187	
Boots and shoes...doz. pairs	4,587	8,405	
Insulated wire		1,729	
Automobile tires and tubes		26,134	
Motorcycle tires and tubes		1,760	
Cycle tires and tubes.....		4,407	
Total		42,622	
EXPORTS.			
August, 1917.			
	POUNDS.	£.	
UNMANUFACTURED—			
Waste and reclaimed rubber	1,420,600	26,359	
MANUFACTURED—			
Apparel, waterproofed ...		64,314	
Boots and shoes...doz. pairs	11,123	9,762	
Insulated wire		4,622	
Automobile tires and tubes		89,001	
Motorcycle tires and tubes		10,767	
Cycle tires and tubes.....		30,152	
Tires and tubes, not specified		10,676	
Manufactures, not specified		127,986	
Total		347,280	
EXPORTS—FOREIGN AND COLONIAL.			
August, 1917.			
	POUNDS.	£.	
UNMANUFACTURED—			
Crude rubber	8,428,300	1,132,175	
Waste and reclaimed rubber	47,300	1,589	
Gutta percha	57,456	9,826	
Totals	8,533,056	1,143,590	
MANUFACTURED—			
Apparel, waterproofed ...		137	
Boots and shoes...doz. pairs	1,415	2,019	
Insulated wire		3,346	
Automobile tires and tubes		9,593	
Motorcycle tires and tubes		4,570	
Cycle tires and tubes.....		376	
Total		20,041	

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.			
August, 1917.			
	Pounds.	£.	
UNMANUFACTURED—			
Crude rubber:			
At—			
London	4,917,400	599,728	
Liverpool	4,306,200	503,640	
Totals	9,223,600	1,103,368	
Waste and reclaimed rubber:			
At—			
London	17,900	645	
Liverpool	10,900	228	
Totals	28,800	873	
EXPORTS.			
August, 1917.			
	Pounds.	£.	
Waste and reclaimed rubber manufactures of the United Kingdom:			
From—			
London	682,300	14,328	
Liverpool	99,200	1,330	
Totals	781,500	15,658	
REEXPORTS.			
August, 1917.			
	Pounds.	£.	
Crude rubber:			
From—			
London	6,593,600	862,277	
Liverpool	1,723,900	254,074	
Totals	8,317,500	1,116,351	
Waste and reclaimed rubber:			
From—			
London	24,600	900	
Liverpool	22,700	689	
Totals	47,300	1,589	

EXPORTS OF INDIA RUBBER FROM MANAOS DURING SEPTEMBER, 1917.

EXPORTERS.	NEW YORK.					EUROPE.					Grand Totals.
	Fine.	Medium.	Coarse.	Cauchó.	Totals.	Fine.	Medium.	Coarse.	Cauchó.	Totals.	
General Rubber Co. of Brazil....	100,713	2,879	35,435	79,973	219,000	106,400	21,600			128,000	347,000
Stowell & Co.	70,243	11,276	38,815	54,065	174,399	93,737	3,637	1,921	\$5,484	154,779	329,178
Tancredi, Porto & Co.	130,482	7,149	30,149	4,474	172,254	55,324	14,641	163	423	70,551	242,805
J. G. Araujo			10,802	1,120	11,922	78,521	4,363	632		33,516	95,438
Adelbert H. Alden, Limited....	1,630	7,650	1,505	18,178	28,963	42,113				42,113	71,076
Günzburger & Co.	21,339	1,798	1,798		24,935						24,935
Ohliger & Co.	7,367	231	1,542	5,734	14,874						14,874
H. Semper	1,678	88	617	357	2,740						2,740
Mesquita & Co.							555	1,105	160	1,820	1,820
W. Peters			960	750	1,710						1,710
Vianna & Co.				300	300						300
Totals	333,452	31,071	121,623	164,951	651,017	376,095	44,796	3,821	56,067	480,779	1,131,876
In transit, Iquitos.....	74,923	907	16,388	15,382	107,600	126,645	1,812	4,812	59,652	192,921	300,521
Totals	408,375	31,978	138,011	180,333	758,697	502,740	46,608	8,633	115,719	673,700	1,432,397

EXPORTS OF INDIA RUBBER AND CAUCHO FROM PARA, MANAOS AND IQUITOS DURING SEPTEMBER, 1917

EXPORTERS.	NEW YORK.					EUROPE.					Grand Totals.
	Fine.	Medium.	Coarse.	Cauchó.	Totals.	Fine.	Medium.	Coarse.	Cauchó.	Totals.	
Stowell & Co.	55,109	6,195	28,087	85,446	174,837	198,142	6,390	4,800		209,332	384,169
J. Marques	49,159	5,902	64,570	16,500	136,131	11,900				11,900	148,031
Suarez, Hermanos & Co., Limited.						45,292		6,082	64,460	115,834	115,834
General Rubber Co.	32,942	1,719	24,117	14,869	73,647	34,796	1,104	1,630		37,530	111,177
Chamié & Co.	9,520		43,200	15,000	67,720	11,390			12,750	24,140	91,860
Pires Teixeira & Co.	57,970	3,740	25,380	2,400	89,490						89,490
G. Fradelizi & Co.	3,230	170	19,070	4,026	26,496	30,769	1,117	637		32,523	59,019
Bitar Irmãos	8,740	2,400	1,283	16,956	29,379						29,379
Seligmann & Co.	18,460			8,092	26,552						26,552
Berringer & Co.	12,284		1,862	3,935	18,081						18,081
Adelbert H. Alden, Limited....	5,970	340	6,270		13,580						13,580
Sundries	1,140		9,330	5,700	16,170	25,561	1,646	291	9,300	36,798	52,968
Totals	255,524	20,466	223,169	172,924	672,083	357,850	10,257	13,440	86,510	468,057	1,140,140
From Manaoas	180,071	27,916	66,652	83,805	358,444	376,095	44,796	3,821	56,067	480,779	839,223
Iquitos	39,432	907	16,388	50,873	107,600	22,121	1,812	4,812	164,176	192,921	300,521
Totals	475,027	49,289	306,209	307,602	1,138,127	756,066	56,865	22,073	306,753	1,141,757	2,279,884

(Compiled by Stowell & Co.)

EXPORTS OF INDIA RUBBER FROM PARA, MANAOS AND IQUITOS DURING AUGUST, 1917.

EXPORTERS.	NEW YORK.					EUROPE.					Grand Totals.
	Fine.	Medium.	Coarse.	Caucho.	Total.	Fine.	Medium.	Coarse.	Caucho.	Total.	
Stowell & Co.	80,535	5,163	36,014	25,332	147,044	156,548	9,909	18,324	1,172	185,953	332,997
General Rubber Co.	134,982	6,193	46,113	40,980	228,268	65,949	2,584	965		69,498	297,766
J. Marques	30,662	9,520	52,132	22,258	134,572	28,560		5,940		34,500	169,072
Suarez Hermanos & Co., Limited.	45,327	364	9,321	16,973	71,985	28,200			45,539	73,739	145,724
Pires Teixeira & Co.	61,200	3,910	31,320	2,800	105,230						105,230
Chamie & Co.	13,940	340	42,300	14,250	70,830	22,270	340		6,000	28,610	99,440
Bitar Irmãos	17,481	1,042	20,971	11,771	51,265	12,607	1,600	224	9,662	24,093	75,358
Berringer & Co.	30,874		8,671	24,180	60,725						60,725
G. Fradelai & Co.	7,820	340	22,450	1,664	32,274						32,274
Seligmann & Co.	15,251		5,110	7,308	27,669						27,669
Sundries	22,824	340	9,790	1,926	34,880	4,493	148	182		4,823	39,703
	480,896	27,212	284,192	172,442	964,742	318,627	14,581	25,635	62,373	421,216	1,385,958
From Manãos	242,375	40,697	90,526	319,860	693,458	478,098	95,826	16,409	184,443	774,776	1,468,234
From Iquitos	28,116	2,268	19,723	484,521	534,628	5,712	176	1,574	112,651	120,113	654,741
Totals	751,387	70,177	394,441	976,823	2,192,828	802,437	110,583	43,618	359,467	1,316,105	3,508,933

(Compiled by Stowell & Co.)

THE MARKET FOR RUBBER SCRAP.

Copyright, 1917.

NEW YORK

THE market for the past month has been devoid of interest and for the past three weeks there has been practically no buying, as the mills have been content with small lots of negligible quantity for immediate shipment. The quiet state of business that has prevailed in the rubber scrap market for the past two months is due to the unsettled business conditions that have shown their effects in all markets. Rubber scrap business will undoubtedly continue to be routine in character so long as crude rubber remains at the present level of comparatively low value. Rubber mills are busy on war orders and civilian business is good, therefore the time when rubber scrap will be influenced by these conditions should not be far distant.

BOOTS AND SHOES. These grades have held their values fairly well, despite the decline in tire stocks. Shoes were quoted $9\frac{3}{4}$ to $9\frac{1}{2}$ cents during the last week of the month, against $9\frac{1}{2}$ to $9\frac{3}{4}$, the prices ruling a month ago. Trimmed and untrimmed arctics have held their relative position with shoes, and were quoted $7\frac{1}{2}$ and $6\frac{1}{2}$ cents, respectively, on October 25.

TIRES. This material has had little attention from buyers, other than small replacement orders. Prices have declined during the month, white G. & G. tires being quoted $6\frac{3}{4}$ cents, compared to $7\frac{1}{2}$ cents a month ago. Standard white auto tires have declined from $7\frac{1}{2}$ to $6\frac{1}{4}$ cents, and standard mixed auto tires from $6\frac{1}{2}$ to 6 cents, during the month.

INNER TUBES. The demand has been very poor for this material and has resulted in a generally weak market for all grades of tubes. Prices are a trifle lower than last month's quotations; however, holders are confident that better business is due for all tube material.

MECHANICALS. These have been in small demand but later in the month considerable garden hose was sold. All other rubber scrap grades had small attention from buyers and prices remained practically unchanged.

STATISTICS. The imports of waste and reclaimed rubber from London and Liverpool for August were 28,800 pounds, value £873, compared with 61,600 pounds, value £2,099, for July. Exports of waste and reclaimed rubber manufactures of the United Kingdom for August were 781,500 pounds, value £15,658, compared with 78,800 pounds, value £4,743, for July.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED

OCTOBER 25, 1917.

Prices subject to change without notice.

	PER POUND.
Boots and shoes	\$0.09¼ @
Trimmed arctics	.07¼ @
Untrimmed arctics	.06¼ @
White tires, Goodrich and Goodyear	.06¼ @ .07
Auto tires, standard white	.06¼ @
standard mixed	.06 @ .06¼
stripped, unguaranteed	.05¼ @ .05¾

Auto peelings, No. 1	.10 @
No. 2	.08¼ @
Inner tubes, No. 1	.23 @
free from patches and valve seats	.25¼ @
No. 2	.12¼ @
red	.12¼ @
Irony tires	.02¼ @
Bicycle tires	.05¼ @
Solid tires	.06¼ @
Clean truck tires	.07¼ @
White scrap, No. 1	.14 @
No. 2	.10 @
Red scrap, No. 1	.09¼ @
No. 2	.07¼ @
Mixed black scrap, No. 1	.05¼ @
No. 2	.04¼ @ .04¾
Rubber car springs	.05¼ @
Horse shoe pads	.03 @
Matting and packings	.01¼ @
Garden hose	.02¼ @
Air brake hose	.06¼ @
Cotton fire hose	.02¾ @
Large hose	.02¼ @
Hard rubber scrap, No. 1, bright fracture	.26 @
Battery jars (black compound)	.03¼ @
Insulated wire stripping, free from fiber	.04¼ @
Rubber heels	.04¼ @

THE MARKET FOR COTTON AND OTHER FABRICS.

Copyright 1917

NEW YORK.

THE market for American cotton has steadily advanced during the month just past, due to the prevailing belief that crop estimates have been too high. This view was supported by reports of a very heavy frost for this time of year, over an extended area in the cotton belt. In consequence, prices of Uplands spot cotton have advanced from 25.25 cents on October 1, to 29.05 on October 25. January contracts sold at 25.19 cents on October 4 and on October 25 the quotation was 26.94. The government report issued October 25 placed the amount of cotton ginned from the growth of the 1917 crop to October 18, at 5,571,624 bales, compared with 7,303,183 bales for the same period in 1916.

EGYPTIAN COTTON. Nothing has happened in the way of new development in the Egyptian cotton import situation during the month. The question is entirely one of securing the necessary shipping facilities. Up to the present time no ships have been sent on the service between this country and Alexandria and no cotton has arrived by the way of Liverpool during the past month. Prices for Sakellarides on October 26 were quoted 49 to 50 cents f. o. b. Alexandria.

SEA ISLAND COTTON. The southern market has been strong all through the month and prices have steadily advanced. Last month at this time extra fine Georgias and Floridas were 62 cents in the Savannah market, compared to 72 cents on October 26. Very little cotton had been moved, and holders were unwilling to sell in quantities, preferring to wait for higher prices that seemed imminent.

Receipts at Savannah for the four weeks ended October 26 were 5,632 bales, against 22,296 bales last year. Sales were 3,292 bales against 14,403 bales, and the stock on hand was 4,212 bales, against 11,150 bales last year. The movement through Jacksonville was 1,674 bales, making 6,164 bales for the season. The present growing crop is estimated at about 90,000 bales.

MECHANICAL DUCKS. The uncertainty of the various factors controlling the production of cotton duck, such as increased cost of raw cotton, labor and operating expenses, have greatly unsettled the market. Prices have advanced during the month, but quotations are largely nominal, as producers are unable to make guaranteed deliveries under present conditions.

SHEETINGS, OSNABURGS AND DRILLS. The mills are all over-sold and sellers are very reluctant to make delivery commitments for any future position. Prices have advanced and the market is extremely nervous and unsettled.

TIRE FABRICS. The uncertainty of the Egyptian cotton situation and the reduced Sea Island crop estimates have strengthened the market for standard building fabrics, and prices have advanced 15 and 20 cents per square yard since our last report.

American peeler fabrics are being substituted for the standard grades wherever possible, and a large variety of these fabrics are being made and sold at relatively high prices that are practically unchanged.

TIRE FABRICS

JENCKES SPINNING COMPANY

PAWTUCKET RHODE ISLAND

RAINCOAT FABRICS.—The sudden advance in cotton caught conservative buyers unawares and they are now having difficulty in placing contracts at advanced prices. Raincoat makers are busy on Government slicker contracts for delivery up to April 1. The demand is for raincoats with military effects. An olive drab covert cloth is now in favor with the trade. This is 64 x 64, three-leaf twill, dyed olive drab and covered by a white spatter, selling at 16 cents a yard.

NEW YORK QUOTATIONS.

OCTOBER 25, 1917.

Prices subject to change without notice.

Airplane and Balloon Fabrics:		
Wamsutta, S. A. I. L. No. 1, 40-inch.....	yard	\$0.52½ @
" No. 4, 38½-inch.....		.50 @
for gas masks.....		.42½ @
Wool Stockinettes—52-inch:		
A—14-ounce	yard	*1.75 @
B—14-ounce		*2.25 @
C—14-ounce		*2.50 @
Cotton Stockinettes—52-inch:		
D—14-ounce	yard	*.85 @ .90
E—11½-ounce		*.60 @ .65
F—14-ounce		*.85 @ .90
G—8-ounce		*.75 @ .80
H—11-ounce		*.70 @ .85
I—9-ounce		*.60 @ .65
Colors—white, black, blue, brown.		
Knitback Stockinette	bound	*1.60 @ 1.65
Tire Fabrics:		
17¼-ounce Sea Island, combed.....	square yard	1.80 @
17¼-ounce Egyptian, combed.....		1.30 @ 1.45
17¼-ounce Egyptian, carded		1.40 @
17¼-ounce Peelers, combed.....		1.05 @ 1.10
17¼-ounce Peelers, carded.....		.80 @ .85
Sheetings:		
40-inch 2.35-yard	yard	.19½ @
40-inch 2.50-yard .....		.19 @
40-inch 2.70-yard .....		.17 @
40-inch 2.85-yard .....		.16½ @
40-inch 3.15-yard .....		.17 @
Osnaburgs:		
40-inch 2.35-yard	yard	.20½ @
40-inch 2.48-yard .....		.19½ @
37½-inch 2.42-yard .....		.19½ @
Mechanical Ducks:		
Hose	bound	*.55 @
Belting		*.55 @
Carriage Cloth Duck:		
38-inch 2.00-yard enameling duck.....	yard	.25 @
38-inch 1.74-yard .....		.30 @
72-inch 16.66-ounce .....		.54 @
72-inch 17-21-ounce .....		.57 @
Drills:		
38-inch 2.00-yard	yard	.25 @
40-inch 2.47-yard .....		.20 @
52-inch 1.90-yard .....		.26 @
52-inch 1.95-yard .....		.25½ @
60-inch 1.52-yard .....		.33 @
Imported Woolen Fabrics Specially Prepared for Rubberizing—Plain and Fancies:		
63-inch, 3¼ to 7½ ounces.....	yard	.75 @ 2.00
36-inch, 2¾ to 5 ounces.....		.50 @ 1.15
Imported Plaid Lining (Union and Cotton):		
63-inch, 2 to 4 ounces.....	yard	.55 @ 1.10
36-inch, 2 to 4 ounces.....		.42½ @ .85
Domestic Worsted Fabrics:		
36-inch, 4½ to 8 ounces.....	yard	.45 @ 1.05
Domestic Woven Plain Linings (Cotton):		
36-inch, 3¾ to 5 ounces.....	yard	.13½ @ .30
Raincoat Cloth (Cotton):		
Bombazine 64 x 60 water repellent.....	yard	.15 @
60 x 48 not water repellent.....		.13½ @
Tweeds 64 x 72.....		.17 @ .19
64 x 102.....		.22½ @ .25
Tweed .....		.30 @ .55
Tweed, printed .....		.10 @ .15
Plaids 60 x 48.....		.12½ @
56 x 44.....		.11½ @
Surface prints 60 x 48.....		.13½ @
64 x 60.....		.15½ @
Repp .....		.19 @ .23½

*Nominal.

Burlaps:			
32— 7½-ounce	100 yards	*9.30	@
40— 7½-ounce		12.70	@
40— 8-ounce		12.85	@
40—10-ounce		16.50	@
40—10½-ounce		16.75	@
45— 7½-ounce		*12.50	@
45— 8-ounce		14.00	@
45— 9½-ounce		*15.15	@ 15.25
48—10-ounce		22.00	@

*Nominal.

SEA ISLAND CROP MOVEMENT.

FROM AUGUST 1, 1917, TO SEPTEMBER 28, 1917.

	Receipts.	
	1917-18.	1916-17.
Stock on hand, August 1, 1917—		
Savannah, 1,043; Charleston, 6.....	bales 1,049	2,508
Received at Savannah (gross).....	1,632	8,552
Received at Jacksonville.....	1,313	4,431
Totals	3,994	15,491
Less exports	1,646	7,543
Stock September 28, 1917—		
Savannah, 2,342; Charleston, 6.....	2,348	7,948
Crop in sight at all ports to date.....	2,945	12,983

EXPORTS.

From—	To			Totals.
	Great Britain.	Northern Mills.	Southern Mills.	
Savannah		155	178	333
Jacksonville		1,313		1,313
Totals		1,468	178	1,646
1916-17	55	6,607	881	7,543
	Dec. 55	Dec. 5,139	Dec. 703	Dec. 5,897

(Compiled by John Mallock & Co., Savannah, Georgia.)

ANNUAL REPORT OF EGYPTIAN COTTON MOVEMENT.

FROM SEPTEMBER 1, 1916, TO AUGUST 31, 1917.

Arrivals at Alexandria.....	Cantars. 5,062,590
Add. Correction	48,490
Total	5,111,080

EXPORTS FROM ALEXANDRIA.

	Bales.	
England—		
Liverpool	207,056	
Manchester	139,140	346,196
Spain—		
Barcelona	12,534	12,534
United States—		
Boston	126,497	
New York	8,394	134,891
France—		
Marseilles	28,063	28,063
Japan—		
Kobe and Yokohama.....	20,682	20,682
Italy—		
Genoa	53,975	
Naples	210	
Leghorn	541	54,726
Portugal—		
Oporto	929	929
Russia—		
Archangel	9,525	
Vladivostok	22,921	32,446
Greece	143	143
Totals	630,610	630,610 4,813,129

RECAPITULATION.

Stock at Alexandria September 1, 1916.....	93,000
Arrivals as above.....	5,111,080
Total	5,204,080
Exports as above.....	4,813,129
Local consumption	63,345
Destroyed by fire.....	1,606
Total	4,878,080
Stock at Alexandria on August 31, 1917, including 16,950 cantars at Port Said awaiting shipment.....	326,000

*Cantar equals 98 pounds. Compiled by Alexandria Cotton Co., Limited, Boston, Massachusetts.

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright 1917

NEW YORK.

INACTIVITY has characterized the base metal market during October. Lead has been decidedly weak, and buyers have held off in view of reports that the production was much larger than requirements, and the current belief that lower prices were to be fixed by the Government. As a result, prices have had a downward trend, and on October 25 the producers quoted 5½ cents. Spelter continued to be dull and inactive, with prices nominally lower, although on October 25 New York quotations for early delivery were fairly firm at 8.15 to 8.25 cents.

Antimony metal has continued lifeless and values unchanged. Prices quoted were 14¼ cents for prompt delivery.

There has been a more active demand for rubber chemicals during October than last month, and a decided improvement in inquiries and orders was noticeable during the latter part of the month. The mills have been frequently in the market for regular supplies and contract deliveries were promptly accepted. Few contracts are being booked at this particular time, due to the unsettled condition of the raw material markets. The slump in pig lead weakened the lead pigments and a general decline followed, with the exception of orange mineral.

ACETONE. The market has been firm, due to small spot stocks. Prices are unchanged.

ACIDS.—Glacial acetic acid has been active and price has advanced. Muriatic, nitric and sulphuric acids have also advanced, the call for the latter being particularly heavy.

ANILINE OIL. Light inquiry and ample spot supplies have maintained prices on this oil.

CAUSTIC SODA.—The market was very erratic and became easy during the last week of the month. Prices on 76 per cent have declined about 2½ cents since October 1.

CORN OIL. The scarcity of corn has restricted production, resulting in advanced prices for the refined product that is in good demand.

LINSEED OIL. Continued declines were noted during the month, due to ample stocks and few buyers.

RUBBER SUBSTITUTES. Scarcity of crude materials has resulted in higher prices. The demand is fair and the market firm.

ZINC OXIDE. The available tonnage of these materials is comparatively small, and the market is consequently steady. French process white seal, is now 15 cents, green seal 14½ cents and red seal 14 cents in car lots f. o. b. shipping point. New contract prices for the coming season may be announced in the near future.

LEAD PIGMENT. The market responded to the decline in pig lead and prices are about a cent lower than last month's quotations, orange mineral, however, remaining firm and unchanged, due to fair demand and small spot stocks. Trade in these materials during the past month has been more active than that of September.

NEW YORK QUOTATIONS.

OCTOBER 25, 1917.

Subject to change without notice.

Accelerene	lb.	*\$2.62	@
Acetone (drums)	lb.	.35	@ .36
Acid, acetic, 28 per cent. (bbls.).....	lb.	.06½	@ .07½
glacial, 99 per cent. (carboys).....	lb.	.40	@
creosylic, 97-99 per cent, straw color.....	gal.	1.10	@
95 per cent, dark.....	gal.	1.00	@
muriatic, 20 degrees.....	lb.	.03	@
nitric, 40 degrees.....	lb.	.09	@ .10
sulphuric, 66 degrees.....	lb.	.02	@ .03
Aldehyde ammonia (crystals).....	lb.	1.00	@
Aluminum flake (carloads, bbls.).....	ton	24.00	@
(carloads, sacks)	ton	22.00	@

* Nominal.

Ammonium carbonate, powdered	lb.	.11%	@	Magnesia, carbonate	lb.	.10%	@
lumps	lb.	.10%	@	oxide, 120 mesh	lb.	*.04	@
Antimony, crimson, sulphuret of (casks)	lb.	.45	@	Magnesite, calcined, powdered	ton	40.00	@ 65.00
crimson, "Magnetco"	lb.	.50	@	Mica, powdered	lb.	.03%	@ .05
crimson, "Mephisto" (casks)	lb.	.48	@	Mineral rubber, "M. R. X."	ton	100.00	@
golden, sulphuret of	lb.	.30	@ .35	"Genasco" (carloads)	ton	50.00	@
golden, "Magnetco"	lb.	.30	@	"Pioneer"	ton	45.00	@
golden, "Mephisto" (casks)	lb.	.27	@	"Richmond Brand"	lb.	.03	@
golden sulphuret, States brand, 16-17 per cent.	lb.	*.28	@	"No. 64 Brand"	ton	40.00	@
red sulphuret, States brand	lb.	*.25	@	"Refined Elaterite"	lb.	*.05	@
vermillion sulphuret	lb.	.55	@	Naphtha, stove gasoline (steel bbls.)	gal.	.24	@
Arsenic, red sulphide	lb.	.45	@	73@76 degrees (steel bbls.)	gal.	.33	@
Asbestos (bags)	ton	20.00	@ 22.50	68@70 degrees (steel bbls.)	gal.	.28	@
Asbestos (bags)	ton	*35.00	@ 50.00	V. M. & P. (steel bbls.)	gal.	.23	@
Barium, carbonate, precipitated	lb.	.04%	@ .04%	Oil, aniline	lb.	.28	@ .31
Barium sulphide, precipitated	lb.	.04	@	corn, refined Argo (carloads)	cwt.	20.11	@
Barytes, pure white	ton	30.00	@ 33.00	linseed, raw (carloads)	gal.	1.12	@ 1.14
off color	ton	20.00	@ 23.00	palm	lb.	.17	@ .21
Basofo	ton	80.00	@	paraffin	gal.	.27	@ .28
Benzol, pure	gal.	.50	@	pine, steam distilled	gal.	*.47	@
90 per cent.	gal.	.45	@	pine tar	gal.	*.28	@
Beta-Naphthol	lb.	.65	@	rapeseed, blown	gal.	*1.65	@ 1.70
Bone ash	lb.	.10	@	rosin	gal.	.35	@ .65
Bone black, powdered	lb.	.15	@	tar (cases)	gal.	.27	@ .34
granular	lb.	.20	@	soluble aniline, yellow, orange	lb.	*2.50	@
Brown oxide of iron	lb.	.01%	@ .02	black	lb.	*1.25	@
sienna, raw and burnt	lb.	.05	@	Orange mineral, domestic	lb.	.13	@
umber, raw and burnt	lb.	.05	@	Oxymony	lb.	.15	@
ochre, domestic	lb.	.02	@ .03	Paragol, soft and medium (carloads)	cwt.	12.55	@
imported	lb.	.04	@ .04%	hard	cwt.	12.05	@
Cadmium tri-sulphate (f. o. b. London)	lb.	*2.68	@	Petrolatum	lb.	.05%	@
sulphide, yellow	lb.	*2.25	@	Petroleum grease	lb.	.04%	@ .04%
Cantella gum	lb.	.38	@	Pine tar retort	bbl.	16.00	@
Carbon, bisulphide (drums)	lb.	.06%	@ .06%	pitch, kiln	gal.	*2.90	@
black (cases)	lb.	.25	@ .35	Pitch, Burgundy	lb.	.05%	@ .06
tetrachloride (drums)	lb.	.17	@	coal tar	lb.	*.02%	@
Caustic soda, 76 per cent.	lb.	.07%	@ .08	pine tar	lb.	*.02%	@
Chalk, precipitated, extra light	lb.	.05	@ .05%	Plaster of paris	gal.	2.00	@ 3.00
precipitated, heavy	lb.	.04	@ .04%	Prussian blue	lb.	.70	@
China clay, domestic (powdered)	ton	20.00	@ 25.00	Pumice stone, powdered (bbls.)	lb.	.03%	@ .04
imported (powdered)	ton	45.00	@	Reclaimed rubber, Standard shoe reclaim	lb.	.15%	@
Chrome, green	lb.	.45	@	Standard tire reclaim	lb.	.18	@
yellow	lb.	.24	@ .30	Resin, Pontianak, refined	lb.	.28	@
Cobalt blue	lb.	.35	@ .50	granulated	lb.	.25	@
Cotton linters, clean mill run	lb.	*.06	@	fused	lb.	*.25	@
Excellerex	lb.	*.85	@	Rosin, K	lb.	7.25	@
Fossil flour	ton	60.00	@ 65.00	Rotten stone, powdered	lb.	.02%	@ .04%
Gas black (cases)	lb.	.25	@ .35	Rubber black	lb.	*.06	@
Gilsonite	ton	40.00	@ 42.50	Rubber substitute, black	lb.	.10	@ .16
Glue, high grade	lb.	.33	@ .35	white	lb.	.13	@ .20
medium	lb.	.30	@ .35	brown	lb.	.16	@ .20
low grade	lb.	.18	@ .25	brown factice	lb.	.09	@ .20
Glycerine, C. P. (drums)	lb.	.70	@	white factice	lb.	.12	@ .20
Graphite, flake (400 pound bbl.)	lb.	.15	@	Rubhide	lb.	*.35	@
amorphous	lb.	.06	@	Shellac, fine orange	lb.	.52	@ .54
Green oxide of chromium (casks)	lb.	*.80	@	Silex (silica)	ton	20.00	@ 36.00
Ground glass FF. (bbls.)	lb.	*.02%	@	Soapstone, powdered	ton	10.00	@ 12.50
Hexamethylene Tetramine (powdered)	lb.	.75	@ .85	Starch, powdered corn (carload, bbls.)	cwt.	5.83	@
Indian red, reduced grades	lb.	.04	@ .09	(carload, bags)	cwt.	5.70	@
pure bright	lb.	.12	@	Sulphur chloride (drums)	lb.	.06%	@ .07%
Infusorial earth, powdered	ton	60.00	@	Sulphur, floor, velvet brand (carloads)	cwt.	3.95	@
boltd	ton	65.00	@	Sulphur, pure soft brand (carloads)	cwt.	3.95	@ 4.50
Iron oxide, red, reduced grades	lb.	.04	@ .10	Talc, American	ton	15.00	@ 18.00
red, pure, bright	lb.	.14	@	French	ton	40.00	@ 45.00
red, excelsior	lb.	.18	@	Tar, coal	bbl.	*4.25	@
Ivory, black	lb.	.16	@ .30	Thiocarbamide	lb.	*.50	@
Lampblack	lb.	.12	@ .25	Toluol, pure	gal.	1.75	@ 2.00
Lead, dry red	lb.	.10	@	Tripoli earth, powdered	ton	60.00	@
sublimed blue	lb.	.08%	@	boltd	ton	65.00	@
sublimed white	lb.	.08%	@	Turpentine, pure gum spirits	gal.	.54%	@
white, basic carbonate	lb.	.09	@	wood	gal.	.44	@ .45
white, basic sulphate	lb.	.08%	@	Venice	lb.	.08	@
black hyposulphite (Black Hypo)	lb.	*.50	@	Ultramarine blue	lb.	.23	@ .50
Lime, flour	lb.	.01%	@ .01%	Vermilion	lb.	*.65	@ .80
Litharge, domestic	lb.	.09%	@ .10	Chinese	lb.	*2.50	@
English	lb.	.13	@ .14	English	lb.	1.90	@ 2.00
sublimed	lb.	.09%	@	Wax, beeswax, white	lb.	.60	@ .65
Lithopone, imported	lb.	.08	@ .09	ceresin, white	lb.	1.2%	@ .20
domestic	lb.	.06%	@ .06%	carnauba	lb.	.42	@ .52
Beckton white (carloads)	lb.	.06%	@ .07	orokerite, black	lb.	.75	@
Rubber makers' white	lb.	.06%	@ .07	green	lb.	.85	@
Magnesium, carbonate, 150 mesh	lb.	.02	@	montan	lb.	*.35	@ .45
calcined, heavy, Thistle Brand	lb.	.12	@	paraffin, refined	lb.	.07%	@ .08
light	lb.	.70	@ .75	118/120 m. p. (cases)	lb.	.08%	@ .08%
				124/126 m. p. (cases)	lb.	.12	@ .12%
				128/130 m. p. (cases)	lb.	.13	@ .13%
				133/135 m. p. (cases)	lb.	.13	@ .13%
				Whiting, Alba	cwt.	1.00	@ 1.25
				commercial	cwt.	1.25	@
				gilders	cwt.	1.35	@
				Paris, white, American	cwt.	1.50	@
				English clinton	cwt.	1.75	@ 2.00
				Wood pulp XXX	ton	*35.00	@
				Yellow ochre	lb.	*.04	@ .05
				india rubber	lb.	*1.50	@
				Zinc oxide, American process, horsehead brand (less carload)	lb.	.10%	@
				"XX red"	lb.	.11	@
				"special"	lb.	.14%	@
				French process, red seal	lb.	.14%	@
				green seal	lb.	.14%	@
				white seal	lb.	.13%	@
				Zinc sulphide, pure	lb.	None	@

* Nominal.

* Nominal.



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